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EPA Superfund
Record of Decision:

WESTERN PROCESSING CO., INC.
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- POTENTIAL DIRECT HUMAN AND ANIMAL CONTACT WITH CONTAMINANTS FROM WESTERN PROCESSING.
- PAST AND POTENTIAL FUTURE CONTAMINATED SURFACE WATER RUNOFF.
- INFILTRATION AND SUBSEQUENT LEACHING OF CONTAMINANTS FROM THE UNSATURATED ZONE INTO THE GROUNDWATER.
- CONTAMINATED GROUNDWATER BENEATH THE SITE.
- CONTAMINATION OF MILL CREEK VIA GROUNDWATER MIGRATING FROM THE SITE TO LEVELS THAT EXCEED BACKGROUND OR AMBIENT WATER QUALITY CRITERIA FOR AQUATIC ORGANISMS.

GIVEN THE NATURE AND EXTENT OF CONTAMINATION ON AND OFF THE WESTERN PROCESSING PROPERTY AND THE ENVIRONMENTAL AND HUMAN HEALTH RISKS THAT THE CONTAMINATION POSES, A COMPREHENSIVE LIST OF POSSIBLE REMEDIAL ACTION TECHNOLOGIES THAT COULD BE USED TO REMEDY THE CONTAMINATION WAS DEVELOPED. AN INITIAL SCREENING WAS CONDUCTED TO IDENTIFY THE TECHNOLOGIES THAT ARE PROVEN AND MOST APPLICABLE TO AND FEASIBLE FOR THE PROBLEMS AT WESTERN PROCESSING. THE LIST OF SUITABLE TECHNOLOGIES WAS THEN USED TO DEVELOP A SET OF REMEDIAL ACTION COMPONENTS THAT WERE DETERMINED TO BE PARTICULARLY SUITABLE FOR THESE PROBLEMS. NONE OF THE REMEDIAL ACTION COMPONENTS IS CAPABLE BY ITSELF OF ADDRESSING ALL THE PROBLEMS AT WESTERN PROCESSING. THEREFORE THE COMPONENTS WERE COMBINED INTO COMPREHENSIVE REMEDIAL ACTIONS FOR THE DETAILED ANALYSIS OF ALTERNATIVES.

THE FEASIBILITY STUDY CONTAINS SEVEN EXAMPLE ALTERNATIVES WHICH WERE DEVELOPED TO MITIGATE THE PROBLEMS IDENTIFIED IN THE NATURE AND EXTENT OF CONTAMINATION AND THE ENDANGERMENT ASSESSMENTS. THE EXAMPLE ALTERNATIVES INCLUDE A NO ACTION ALTERNATIVE, TOTALLY ON-SITE DISPOSAL, TOTALLY OFF-SITE DISPOSAL, AND AN ALTERNATIVE WHICH HAS BEEN DEVELOPED AND PROPOSED BY THE PRPS. THE PRP'S ALTERNATIVE WAS DEVELOPED SEPARATELY FROM THE GOVERNMENT AND THEY USED DIFFERENT GOALS IN DEVELOPING THEIR ALTERNATIVE. WHILE ALL SEVEN ARE FEASIBLE ALTERNATIVES, THEY ARE CALLED EXAMPLE ALTERNATIVES BECAUSE THERE ARE AN INFINITELY LARGE NUMBER OF ALTERNATIVES, PARTICULARLY WHEN THE POSSIBLE AREAL EXTENT OF A PARTICULAR COMPONENT IS CONSIDERED. ALTERNATIVE 4 HAS ONLY SOURCE CONTROL MEASURES, ALTERNATIVE 7 HAS ONLY OFFSITE MEASURES, AND ALTERNATIVES 2, 3, AND 5, WHILE GENERALLY SOURCE CONTROL MEASURES, DO INCLUDE SOME OFFSITE MEASURES AS WELL.

THE EXAMPLE REMEDIAL ACTION ALTERNATIVES WERE EVALUATED AND COMPARED TO DETERMINE THEIR RELATIVE COST, AND THEIR TECHNICAL FEASIBILITY, PUBLIC HEALTH, AND ENVIRONMENTAL ASPECTS. TABLE 4 SUMMARIZES THE SEVEN ALTERNATIVES AND THE EVALUATIONS. THE NUMBERED AREAS REFER TO THE NUMBERED PARCELS IN FIGURE 2.

THE NATURE AND EXTENT OF CONTAMINATION ON AND OFF WESTERN PROCESSING IS A FUNCTION OF THE TYPE OF MATERIALS WHICH WERE RELEASED ON THE SITE AND THE PATHWAYS BY WHICH THOSE MATERIALS WERE ABLE TO MOVE. EACH CONTAMINANT'S MOBILITY OR ABILITY OR LACK OF ABILITY TO DISSOLVE INTO, AND MOVE WITH, WATER, GREATLY AFFECTS THE EXTENT OF CONTAMINATION OF THAT CHEMICAL. MOBILITY ALSO AFFECTS THE RELATIVE SUCCESS A PARTICULAR EXAMPLE ALTERNATIVE HAS IN REMOVING THAT CONTAMINANT. AS THE SUMMARY CHART SHOWS, ANY OF THESE ALTERNATIVES WILL WORK IF IT IS OPERATED FOR LONG PERIODS OF TIME. SUCH AN EXTENDED PERIOD MAY NOT BE TECHNICALLY OR ADMINISTRATIVELY PRACTICAL.

THE TWO-VOLUME FEASIBILITY STUDY AND EXECUTIVE SUMMARY CONTAINS MORE INFORMATION ON THE SCREENING CRITERIA AND THE STEPS USED TO DEVELOP THE ALTERNATIVES.

ONE OF THE FINDINGS OF THE FEASIBILITY STUDY WAS THAT COMPLETE EXCAVATION AND OFF-SITE DISPOSAL OF CONTAMINATED SOILS WOULD BE PROHIBITIVELY COSTLY. ALSO, REMOVAL OF METALS FROM THESE SOILS WITH THE PROPOSED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM IS LIKELY TO BE A VERY LONG TERM OPERATION. THEREFORE EPA HAS RECONSIDERED THE POTENTIAL FOR IN SITU SOIL TREATMENT TECHNOLOGIES.

IN SITU ENHANCED LEACHING WOULD INVOLVE LOWERING THE PH AND/OR ADDING OTHER CHEMICALS TO THE LEACHING SOLUTIONS APPLIED EITHER AT THE SITE SURFACE OR IN THE VERY SHALLOW UNSATURATED ZONE. (THE ACID LEACHING WOULD BE FOLLOWED BY A NEUTRALIZATION STEP.). ENHANCED LEACHING ALLOWS THE CONTAMINANTS, PARTICULARLY THE NORMALLY VERY HARD TO REMOVE METALS, TO BE REMOVED MUCH FASTER. THE PRELIMINARY RESULTS OF SOIL COLUMN TESTS DONE BY THE PRPS ON WESTERN PROCESSING SOILS HAVE SHOWN THAT THE AVAILABLE ZINC CAN BE REDUCED ABOUT 10 TIMES FASTER WHEN LEACHED WITH PH 3.6 WATER. ADDITIONAL CAPITAL COSTS TO IMPLEMENT THIS TECHNIQUE ONCE THE GROUNDWATER EXTRACTION SYSTEM IS OPERATING ARE ESTIMATED TO BE $600,000, ASSUMING THAT ADEQUATE SOLUTION CAN BE APPLIED THROUGH AN INFILTRATION TRENCH.

THROUGH SOIL WASHING, CHELATING AGENTS, SUCH AS EDTA, CAN ALSO REMOVE THE METAL CONTAMINANTS FROM THE SOIL. BECAUSE OF THE HIGH COST OF THE CHEMICAL AND POTENTIAL ENVIRONMENTAL EFFECTS, THESE CHELATING AGENTS WOULD NOT BE USED FOR IN SITU LEACHING. RATHER, USE OF THESE AGENTS WOULD REQUIRE DIGGING UP THE SOIL, WASHING THE SOIL IN A SPECIAL ON-SITE UNIT, AND THEN REPLACING THE SOIL. PRELIMINARY RESULTS OF SOIL COLUMN TESTS PERFORMED FOR EPA ON WESTERN PROCESSING SOILS HAVE SHOWN HEAVY METAL REMOVALS OF FROM 15% FOR NICKEL TO ESSENTIALLY 100% FOR LEAD AND CADMIUM.

IN-SITU STABILIZATION IS ANOTHER INNOVATIVE TECHNIQUE. THIS USES STABILIZATION CHEMICALS THOROUGHLY MIXED WITH THE CONTAMINATED SOILS TO TIE THE CONTAMINANTS IN PLACE, IMMOBILIZE SOIL PARTICLES, DECREASE THE PERMEABILITY OF THE SOIL MASS IN RELATION TO SURROUNDING SOILS, AND OCCASIONALLY, TO TRANSFORM CERTAIN CHEMICALS INTO LESS TOXIC FORMS. METALS ARE PARTICULARLY AMENABLE TO THIS TECHNIQUE. AMONG THE ADVANTAGES OF THIS TECHNIQUE ARE THAT AN EXTREMELY HARD AND STABLE LAYER IS FORMED WHICH CAN SERVE AS A FOUNDATION FOR OTHER STRUCTURES, SUCH AS A CAP OR A ROAD. LABORATORY SCALE TESTS ARE CURRENTLY UNDERWAY USING WESTERN PROCESSING SOIL. THE ESTIMATED COST OF THIS TECHNIQUE IS $35 PER CUBIC YARD WITHIN 15 FEET OF THE SURFACE, OR $9,000,000 FOR THE 11 ACRE SITE, 15 FEET DEEP. LONG TERM OPERATIONAL AND MAINTENANCE EXPENSES ARE ESTIMATED TO BE MINIMAL AT A PROPERLY STABILIZED SITE, INVOLVING ONLY PERIODIC PERFORMANCE MONITORING. IF EITHER SOIL STABILIZATION OR SOIL WASHING TECHNOLOGY IS CHOSEN IN THE FUTURE, THE ROD WILL BE AMENDED AFTER AN OPPORTUNITY FOR PUBLIC COMMENT.

#CR
COMMUNITY RELATIONS

A COMMUNITY RELATIONS PROGRAM HAS BEEN IN PLACE FOR TWO YEARS. DOE AND EPA HAVE TAKEN AN ACTIVE ROLE IN THIS PLAN. THE MAJOR ELEMENTS HAVE INCLUDED: MONTHLY INTERAGENCY MEETINGS WITH THE KENT CITY MAYOR AND HER STAFF; PUBLIC PRESENTATIONS/MEETINGS WHENEVER THE CITY OR CITY COUNCIL HAS REQUESTED IT; PRESS RELEASES AT ALL MAJOR EVENTS, SUCH AS THE RELEASE OF DATA OR REPORTS, OR THE START OF PARTICULAR ON-SITE ACTIVITIES; WIDE DISTRIBUTION OF PRESS RELEASES AND FACT SHEETS; AND THE AVAILABILITY OF GOVERNMENT STAFF BY PHONE TO RESPOND TO QUESTIONS FROM THE PUBLIC. PUBLIC INTEREST IS SPORADICALLY HIGH, THOUGH THE CITY OF KENT, CERTAIN NEIGHBORING PROPERTY OWNERS, AND A FEW INDIVIDUALS HAVE HAD A HIGH LEVEL OF CONTINUED INTEREST.

IN MID-MARCH 1985, A LETTER, A FACT SHEET, A SEPARATE EXECUTIVE SUMMARY, AND THE TWO VOLUME FEASIBILITY STUDY WAS MADE AVAILABLE TO THE PUBLIC. OVER 500 LETTERS, FACT SHEETS, AND EXECUTIVE SUMMARIES WERE SENT OUT. (THIS INCLUDES THE APPROXIMATELY 300 COPIES WHICH WERE SENT TO THE PRPS.). OVER 100 COPIES OF THE ENTIRE FEASIBILITY STUDY WERE SENT OUT TO INDIVIDUALS, PRPS, AND AGENCIES KNOWN TO BE INTERESTED IN THE SITE. A DOZEN COPIES WERE MADE AVAILABLE THROUGH THE LOCAL PUBLIC AND EPA REGIONAL LIBRARIES. IN ADDITION, COPIES WERE AVAILABLE FREE FROM EPA FOR THE ASKING. THE 30 DAY COMMENT PERIOD CLOSED APRIL 10, 1985. AS OF APRIL 26, 1985, 19 COMMENT LETTERS HAD BEEN RECEIVED. NO LETTERS WERE IDENTIFIABLE AS BEING FROM ANY PRP OR THE PRP COMMITTEE.

A SERIES OF FOUR PUBLIC MEETINGS/WORKSHOPS WERE HELD AT THE KENT CITY HALL. BY THE SECOND MEETING, VIRTUALLY ALL ATTENDEES WERE WHAT COULD BE CALLED "EXTREMELY OR FINANCIALLY INTERESTED PARTIES.". PRESENTATIONS WERE MADE BY THE PRPS' COORDINATING COMMITTEE'S CONSULTANTS, A NEIGHBORING PROPERTY OWNER'S CONSULTANTS, THE OWNER/OPERATOR OF WESTERN PROCESSING, THE MOST ACTIVE ENVIRONMENTALIST, AND THE FISHERIES BIOLOGIST OF THE LOCAL INDIAN TRIBE, AS WELL AS BY CH2M HILL. THE ON-GOING LAWSUIT BETWEEN THE NEIGHBORING PROPERTY OWNER AND THE PRPS LIMITED, TO SOME EXTENT, THE RANGE OF POTENTIAL EXCHANGES BETWEEN THOSE TWO PARTIES. SPECIAL SMALL BRIEFINGS WERE HELD FOR THE AFFECTED PROPERTY OWNERS, NATURAL RESOURCE AGENCIES, ENVIRONMENTALISTS, AND THE PRESS.

THE MAJOR ISSUES THAT WERE RAISED WERE:

- ADEQUACY OF THE DATA. STATEMENTS WERE MADE THAT THERE ISN'T ENOUGH DATA TO ANSWER ALL THE QUESTIONS OR TO DECIDE ON A REMEDIAL ACTION. THE MAJOR AREAS WHICH WERE AFFECTED BY THIS CONCERN ARE GROUNDWATER (IS THERE DEEP GROUNDWATER CONTAMINATION WHICH HAS REACHED THE REGIONAL FLOW SYSTEM?); MILL CREEK (HOW FAR DOWNSTREAM AND HOW DEEP ARE THE SEDIMENTS CONTAMINATED?); AND, TO A MUCH SMALLER EXTENT, SOIL (THERE ISN'T ENOUGH INFORMATION TO DETERMINE THE EXACT EXTENT (VERTICAL AND HORIZONTAL) OF CONTAMINATION SO THAT EXCAVATION OR CAPPING CAN BE DEFINED.). DURING THE COMMENT PERIOD, MOST INTERESTED PARTIES AGREED THAT AT LEAST SOME COMPONENTS OF A REMEDIAL ACTION, ESPECIALLY ON-PROPERTY EXCAVATION WITH OFF-SITE DISPOSAL, COULD AND SHOULD BEGIN WHILE ANY MISSING DATA ARE COLLECTED.

- FUTURE PUBLIC PARTICIPATION. ANY FURTHER INFORMATION WHICH IS COLLECTED NEEDS TO BE SHARED WITH THE PUBLIC AND FURTHER PUBLIC INPUT REQUESTED BEFORE MAJOR DECISIONS ARE MADE.

- PROPERTY VALUES. THE NEIGHBORING PROPERTY OWNERS ARE GREATLY CONCERNED ABOUT BEING ABLE TO PROFITABLY DEVELOP AND SELL THEIR LAND.

A MAJOR, THOUGH NOT ALWAYS SUCCESSFUL, GOAL OF THE PUBLIC COMMENT PERIOD AND MEETINGS WAS TO ENCOURAGE PARTICIPANTS TO COME UP WITH AND TO GIVE TO EPA CONSTRUCTIVE IDEAS AS TO HOW THE SITE SHOULD BE CLEANED UP, RATHER THAN TO FOCUS ON THE PROBLEMS THEY PERCEIVED IN THE FEASIBILITY STUDY. ALTERNATIVES WHICH INVOLVED EXCAVATION AND OFF-SITE DISPOSAL APPEARED TO BE FAVORED, WHILE ALMOST NO ONE GAVE SERIOUS CONSIDERATION TO ALTERNATIVE 3, THE ON-PROPERTY LANDFILL. IMPROVEMENT OF THE GROUNDWATER WAS ALSO FAVORED. HOWEVER, ONLY VERY GENERAL FEEDBACK WAS GIVEN TO EPA ON WHAT LEVELS OF "CLEAN" WERE CONSIDERED IMPORTANT. IT APPEARS THAT CLEAN WAS GENERALLY ASSUMED TO MEAN BACKGROUND (E.G. UPSTREAM) WATER QUALITY IN MILL CREEK, AND ADEQUATELY LOW SOIL

CONTAMINATION TO ALLOW CITY AND THE HEALTH DEPARTMENT APPROVAL OF INDUSTRIAL DEVELOPMENTS. ONE INDIVIDUAL SUGGESTED THAT EXTREMELY STRINGENT SOIL CONTAMINATION LEVELS WERE NECESSARY ALONG THE UNDERGROUND UTILITY CORRIDORS WHERE MAINTENANCE WORKERS MAY NEED ACCESS. CAPPING AND THEN DEVELOPING THE ENTIRE AREA WAS SUGGESTED BY SOME OTHERS.

MILL CREEK APPEARS TO BE A POTENTIALLY COMPLEX ISSUE. A NUMBER OF PEOPLE SUGGESTED THAT REROUTING MILL CREEK COULD BE A GOOD SOLUTION TO THE WESTERN PROCESSING SITUATION. A NUMBER OF THE PROPERTY OWNERS ARE EXTREMELY INTERESTED IN HAVING MILL CREEK REROUTED SO THAT THE EXISTING CREEK BED COULD BE FILLED AND THEIR PROPERTY MORE EASILY AND FULLY DEVELOPED. SOME OF THE SUGGESTIONS FOR MOVING MILL CREEK COULD MAKE THE EXTENT OF SHALLOW GROUNDWATER CONTAMINATION GREATER AND THUS WOULD BE DETRIMENTAL. THESE ALTERNATIVES WOULD BE ENVIRONMENTALLY ACCEPTABLE ONLY IF THE EXISTING CREEK BED WOULD BE REPLACED BY A FRENCH DRAIN, AND IF THE FRENCH DRAIN WAS PROPERLY MAINTAINED. THE NATURAL RESOURCE AGENCIES AND THE INDIAN TRIBE ARE MOST CONCERNED THAT MILL CREEK WATER QUALITY AND FISH HABITAT ARE IMPROVED.

#RA
RECOMMENDED ALTERNATIVE

THE OBJECTIVES OF ANY REMEDIAL ACTION AT THE WESTERN PROCESSING SITE ARE TO: (1) PREVENT DIRECT HUMAN CONTACT WITH OR INGESTION OF CONTAMINATED SOILS EITHER ON OR OFF-SITE; (2) PREVENT THE FURTHER SPREAD OF AND, IF POSSIBLE, REMOVE THE CONTAMINATION FROM THE SHALLOW AQUIFER; (3) PREVENT FURTHER CONTAMINANT DISCHARGES (VIA GROUNDWATER) TO MILL CREEK AT LEVELS WHICH ARE HARMFUL TO AQUATIC ORGANISMS; AND (4) CONTROL CONTAMINATED STORM WATER RUNOFF FROM THE SITE. THE EXAMPLE ALTERNATIVE PRESENTED IN THE FEASIBILITY STUDY WHICH INCLUDES DEEP EXCAVATION WITH SHORT-TERM PUMPING AND TREATING OF GROUNDWATER APPEARS TO COME CLOSEST TO MEETING ALL OF THE OBJECTIVES, BUT ITS COST IS PROHIBITIVELY HIGH. ON THE OTHER HAND, THE RESULTS OF THE GROUNDWATER MODEL USED DURING THE FEASIBILITY STUDY INDICATE THAT THE SHALLOW EXCAVATION OPTION (WITH METALS LADEN SOILS LEFT IN THE SATURATED ZONE) MAY PERMIT METALS TO DISCHARGE FROM THE GROUNDWATER TO MILL CREEK AT CONCENTRATIONS HARMFUL TO AQUATIC LIFE FOR MANY YEARS AFTER THE PUMP AND TREATMENT SYSTEM IS TURNED OFF AND THE PRESENT HYDRAULIC GRADIENTS ARE REESTABLISHED. THEREFORE, SOME INTERMEDIATE ALTERNATIVE SUCH AS PARTIAL EXCAVATION WITH SOME PUMPING/TREATMENT OF GROUNDWATER, FOLLOWED BY IN SITU STABILIZATION OF THE METALS IN THE SOIL MIGHT ULTIMATELY PROVE TO BE THE MOST COST-EFFECTIVE REMEDY. HOWEVER, THE COST AND TECHNICAL FEASIBILITY OF IN SITU SOIL STABILIZATION (OR OTHER INNOVATIVE TECHNOLOGIES) HAS NOT YET BEEN EVALUATED AND THUS CANNOT BE A PART OF THIS PRESENT REMEDIAL ACTION.

THEREFORE, THE PROPOSED REMEDIAL ACTION IS AN INTERIM APPROACH. THE FOLLOWING COMPONENTS ARE PROPOSED FOR THE PRESENT OPERABLE UNIT:

- INTENSIVE SOIL SAMPLING AND ANALYSIS ON AND OFF THE SITE DURING DETAILED DESIGN.

- SELECTIVE EXCAVATION OF HIGHLY CONTAMINATED SOILS AND NON-SOIL MATERIALS (DRUMS AND BURIED WASTES) IN AREA I TO REDUCE THE SOURCE STRENGTH. OFF-SITE DISPOSAL OF EXCAVATED SOILS AND MATERIALS. EXCAVATE, OR CLEAN AND PLUG ALL UTILITY AND PROCESS LINES IN AREA I.

- USING THE RESULTS OF THE SOIL SAMPLING AND ANALYSIS PROGRAM, ELIMINATE DIRECT CONTACT THREATS IN THE NON-WESTERN PROCESSING PROPERTY THROUGH EXCAVATION OF ALL SOILS WHICH EXCEED THE ADI LEVEL OR THE 1 X 10-5 EXCESS CANCER RISK LEVEL, AND THROUGH COVERING/CAPPING ALL REMAINING SURFACE SOILS WITH ABOVE BACKGROUND CONCENTRATIONS OF PRIORITY POLLUTANTS. MAINTAIN COVER/CAPS. EXCAVATE UTILITY LINES LEAVING THE WESTERN PROCESSING SITE. CLEAN UTILITY MANHOLES/VAULTS NEAR THE SITE. DISPOSAL WILL IN AREA I OR OFF-SITE. ACTIONS WILL BE LIMITED TO THOSE OFF-SITE SOILS WHICH MAY HAVE BEEN CONTAMINATED BY WESTERN PROCESSING. THE LEAD-CONTAMINATED HOUSE IN AREA B WILL BE REMOVED OR DECONTAMINATED.

- CONSTRUCT A GROUNDWATER EXTRACTION AND PRE-TREATMENT PLANT.

- OPERATE THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM FOR A PERIOD OF UP TO FIVE YEARS (INITIAL PHASE OF SYSTEM OPERATION). THE PURPOSE OF THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SHALL BE TO PREVENT FURTHER CONTAMINANT DISCHARGES VIA THE GROUNDWATER TO MILL CREEK AT LEVELS WHICH ARE HARMFUL TO AQUATIC ORGANISMS AND TO PREVENT THE FURTHER SPREAD OF, AND IF POSSIBLE, REMOVE THE CONTAMINATION FROM, THE SHALLOW AQUIFER.

- CONSTRUCT, OPERATE, AND MAINTAIN A STORMWATER CONTROL SYSTEM.

- INTENSIVE MONITORING OF MILL CREEK, THE GROUNDWATER AND THE GROUNDWATER EXTRACTION SYSTEM PERFORMANCE, COMBINED WITH TESTS AND IMPLEMENTATION OF RELATIVELY INEXPENSIVE SYSTEM MODIFICATIONS SUCH AS ACID OR SOLVENT-ENHANCED LEACHING OF METALS FROM THE SOIL.

- EXCAVATE CONTAMINATED MILL CREEK SEDIMENTS.

- BENCH-SCALE TESTS OF SOIL SOLIDIFICATION TECHNIQUES AND, IF SYSTEM PERFORMANCE SHOULD DICTATE, PILOT SCALE TESTS OF IN SITU SOLIDIFICATION TECHNOLOGIES.

- PERFORM SUPPLEMENTAL REMEDIAL PLANNING STUDIES IF SHALLOW GROUNDWATER CONTAMINATION BEYOND THE CURRENTLY CONTAMINATED ZONE OR SIGNIFICANT REGIONAL CONTAMINATION IS DETECTED.

THE FINAL OPERABLE UNIT SHOULD OCCUR AFTER THE INITIAL PHASE OF SYSTEM OPERATION AND MIGHT INCLUDE:

- CONTINUED GROUNDWATER EXTRACTION.

- IN SITU SOLIDIFICATION OF CONTAMINATED SOILS.

- SITE CLOSE-OUT WITH A CAP AND PROVISIONS FOR LONG-TERM MONITORING.

- LONG-TERM INSTITUTIONAL CONTROLS AND DEED RESTRICTIONS.

- ALTERNATIVE CONCENTRATION LIMITS FOR GROUNDWATER.

DETERMINATION OF THE FINAL OPERABLE UNIT COMPONENTS WILL BE MADE IN ANOTHER ROD PENDING EVALUATION OF THE PERFORMANCE OF THE SECOND OPERABLE UNIT.

EACH COMPONENT IS DISCUSSED INDIVIDUALLY BELOW. THE DISCUSSIONS INCLUDE THE RECOMMENDED ALTERNATIVE AND THE COSTS. THE COST-EFFECTIVE REMEDY IS ONE WHICH EFFECTIVELY MITIGATES AND MINIMIZES THREATS TO AND PROVIDES ADEQUATE PROTECTION OF PUBLIC HEALTH, WELFARE AND THE ENVIRONMENT, CONSIDERING COST, TECHNOLOGY, RELIABILITY, ADMINISTRATIVE AND OTHER CONCERNS. ADEQUATE PROTECTION IS CONSIDERED TO BE, AT A MINIMUM, A REMEDY WHICH ATTAINS OR EXCEEDS APPLICABLE OR RELEVANT FEDERAL PUBLIC HEALTH OR ENVIRONMENTAL STANDARDS. PRIMARY CONSIDERATION HAS BEEN GIVEN TO THESE STANDARDS IN THE SELECTION OF THE RECOMMENDED ALTERNATIVE. THE RECOMMENDED ALTERNATIVE COMBINES ELEMENTS FROM THE DIFFERENT EXAMPLE REMEDIAL ALTERNATIVES EXAMINED IN THE FEASIBILITY STUDY, AS WELL AS OTHER ELEMENTS BROUGHT TO EPA'S ATTENTION DURING AND AFTER THE PUBLIC COMMENT PERIOD.

ON-SITE (AREA I) SOILS

THE RECOMMENDED ALTERNATIVE FOR AREA I CONSISTS OF: A NON-DESTRUCTIVE GEOPHYSICAL SUBSURFACE SURVEY OF AREA I TO LOCATE DRUMS, TANKS, AND BURIED UTILITIES, TO BE FOLLOWED BY PROBING AND SAMPLING AS NECESSARY OF DISCOVERED ITEMS; EXCAVATION OF ABANDONED UTILITIES, CONCENTRATED NON-SOIL OR CONTAINERIZED WASTES, AND AREAS OF KNOWN PCB CONCENTRATIONS OVER 50 PPM; EXCAVATION, OR PUMPING OUT, CLEANING, AND PLUGGING OF BURIED TANKS AND FACILITIES IF THEY CANNOT BE EXCAVATED; AND A DEED OR TITLE RESTRICTION ON THE USE OF THE SITE. TESTING AND SAMPLING TO DEFINE THE EXCAVATION WOULD BE DONE DURING THE REMEDIAL DESIGN, WHILE THE TYPE AND DESIGN OF THE CAP WOULD BE DETERMINED DURING THE NEXT PHASE OF REMEDIAL ACTION. THE ESTIMATED COSTS FOR THIS ALTERNATIVE ARE: $625,000 FOR THE SAMPLING AND ANALYSIS DURING DETAILED DESIGN; $5,200,000 FOR THE EXCAVATION AND OTHER ON-SITE WORK DURING THIS PHASE OF THE REMEDIAL ACTION. THIS COST ESTIMATE IS BASED ON EXCAVATING AND DISPOSING OFF-SITE 10,650 CUBIC YARDS, OR 10% OF THE MATERIAL IN THE TOP SIX FEET. THE COST FOR THE EXCAVATION AND DISPOSAL PHASE IS ONLY AN ESTIMATE AND CANNOT BE ACCURATELY DETERMINED UNTIL THE SAMPLING IS COMPLETED. THESE ACTIVITIES WILL REDUCE THE SOURCE STRENGTH.

THE ALTERNATIVES CONSIDERED IN THE FEASIBILITY STUDY INCLUDED LEAVING WASTES IN-PLACE AND PLACING A MULTILAYER RCRA CAP OVER THE SITE, PLACING ALL THE MATERIAL IN THE UNSATURATED ZONE IN THE DOUBLE-LINED LANDFILL ON THE SITE, AND EXCAVATING TO BACKGROUND WITH TRANSPORT AND DISPOSAL OFF-SITE. SIGNIFICANT CONTAMINATION IS FOUND DOWN TO 15 FEET. CLEANING TO BACKGROUND WOULD COST MORE THAN $164,000,000 (ALTERNATIVE 5 PRESENT WORTH, BASED ON DISPOSAL COSTS IN SPRING 1985). THE SELECTED ALTERNATIVE IS SIMILAR TO ALTERNATIVE 2, BUT IS MORE PROTECTIVE. (ALTERNATIVE 2 PLACED A RCRA CAP OVER THE SITE, AND EXCAVATED ONLY BURIED CONTAINERS AND UTILITIES.). IN ADDITION TO THE PROTECTIONS PROVIDED BY ALTERNATIVE 2, THE RECOMMENDED ALTERNATIVE WOULD REMOVE FROM THE SITE THE MOST HAZARDOUS MATERIALS AND THE MATERIALS MOST LIKELY TO MAKE IT HARD TO ACHIEVE THE GROUNDWATER IMPROVEMENTS OR CAP STABILITY. IT DIFFERS FROM ALTERNATIVE 2 BY EXCAVATING SOME OF THE WASTE MATERIALS ON THE SITE, ALLOWING SOME OF THE CURRENTLY OFF-SITE SOIL CONTAMINATED BY WESTERN TO BE BROUGHT BACK ON TO THE SITE AND PLACED UNDER THE CAP, AND POSTPONING PLACEMENT OF THE CAP UNTIL THE GROUNDWATER EXTRACTION PROGRAM IS COMPLETED. IT IS NOT KNOWN WHETHER THE CAP WOULD BE COMPATIBLE WITH THE EXTENSION OF 72ND AVENUE S., OR OTHER DEVELOPMENT UNDER CONSIDERATION BY THE CITY OF KENT.

OFF-SITE SOILS

THE RECOMMENDED ALTERNATIVE FOR OFF-SITE SOILS CONSISTS OF: EXTENSIVE ADDITIONAL SOIL SAMPLING AND ANALYSIS; EXCAVATION OF ABANDONED UTILITIES LEAVING AREA I; EXCAVATION OF SOILS CONTAMINATED WITH PCBS OVER 2 PPM; EXCAVATION OF HOT SPOTS (DEFINED BELOW); COVERING/CAPPING SOILS ABOVE BACKGROUND; INSPECTION AND CLEANING OF "LIVE" UTILITY LINE VAULTS/MANHOLES WHICH MAY HAVE BEEN AFFECTED BY WESTERN PROCESSING; AND THE REMOVAL OR

DECONTAMINATION OF A LEAD CONTAMINATED HOUSE. ADDITIONAL EXCAVATION OF SOILS WITH ZINC OR CADMIUM OR OTHER HEAVY METAL CONCENTRATIONS WHICH MAY AFFECT ACHIEVING THE MILL CREEK AND SHALLOW GROUNDWATER GOALS MAY ALSO BE NECESSARY.

THE ESTIMATED COSTS FOR THE RECOMMENDED ALTERNATIVE ARE: $1,000,000 FOR THE SAMPLING AND ANALYSIS DURING DETAILED DESIGN; AND $625,000 FOR THE EXCAVATION, CAPPING/COVERING AND OTHER OFF-SITE WORK. THE COST FOR THE EXCAVATION AND DISPOSAL PHASE IS ONLY AN ESTIMATE AND CANNOT BE DETERMINED UNTIL THE SAMPLING IS COMPLETED AND DECISIONS ARE MADE ON WHAT MATERIAL CAN BE CONSOLIDATED ON AREA I. THIS ESTIMATE ASSUMES THAT ALMOST ALL OF THE EXCAVATED OFF-SITE SOILS WILL BE PLACED ON AREA I. (SEE SELECTION OF DISPOSAL FACILITY SECTION.).

THE ADDITIONAL SOIL SAMPLING AND ANALYSIS WOULD BE DONE DURING REMEDIAL DESIGN. ALL OFF-SITE REMEDIAL ANALYSIS AREAS WOULD BE SAMPLED EXCEPT FOR AREA VI. THE SAMPLING PROGRAM WOULD BE PHASED, WITH THE INITIAL PHASE CONSISTING OF OVER 300 SAMPLING LOCATIONS. THE TIGHTEST GRIDS AND DEEPEST SAMPLES WOULD BE IN THE AREAS OF FORMER OVERLAND FLOW IN AREAS II, V, AND IX. TABLE 5 CONTAINS MORE DETAILS ON THE INITIAL PHASE OF THE SOIL SAMPLING PROGRAM.

SOILS CONTAMINATED FROM WESTERN PROCESSING ACTIVITIES WITH ABOVE BACKGROUND PRIORITY POLLUTANTS WILL ALSO BE COVERED WITH MATERIALS OF PERMEABILITY LESS THAN OR EQUAL TO THE NATURAL SUBSOILS, UNLESS IT IS MORE COST-EFFECTIVE OR PRACTICABLE TO EXCAVATE THESE SOILS. EXCAVATION OF SOILS WITH BELOW HOT SPOT CONCENTRATIONS WILL BE LIKELY IN THE S. 196TH STREET DITCH AND OTHER DRAINAGE DITCHES, AS PLACING A COVER/CAP MAY NOT BE PRACTICABLE. OFF-SITE AREAS WITH SMALL AREAS OF ABOVE BACKGROUND CONCENTRATIONS MAY BE COST-EFFECTIVE TO EXCAVATE. THE DECISION ON WHETHER THE COVER/CAP SHOULD BE SOIL OR OTHER MATERIALS (SUCH AS ASPHALT OR CONCRETE) WILL BE MOSTLY DEPENDENT ON WHAT ALTERNATIVE WILL HAVE THE LOWEST MAINTENANCE REQUIREMENT FOR A PARTICULAR PROPERTY. DISCUSSIONS WITH THE PROPERTY OWNERS WILL ALSO BE A PART OF THIS DECISION. DETAILED DESIGN WORK MAY DISCLOSE THAT, FOR CERTAIN OFF-SITE AREAS (E.G. AREA II), IT IS MORE COST-EFFECTIVE TO CAP THE AREA, EVEN IF CERTAIN UTILITIES MUST BE MOVED.

THE EXPOSURE ASSESSMENT/RISK ANALYSIS APPROACH HAS BEEN USED TO SET THE ACTION LEVELS FOR DEFINING HOT SPOTS, OR THE RESIDUAL CONTAMINATION WHICH MAY BE LEFT IN PLACE AS IS WILL NOT POSE A THREAT TO HEALTH OR THE ENVIRONMENT THROUGH ANY ROUTE OF EXPOSURE. THE IMPACTS OF THE OFF-SITE SOILS ON THE GROUNDWATER ARE ADDRESSED THROUGH THE SHALLOW GROUNDWATER COMPONENT. FOR DIRECT CONTACT, A HOT SPOT HAS BEEN DEFINED TO BE SOIL WITH ANY ONE COMPOUND EXCEEDING THE ADI, OR WITH A CUMULATIVE CANCER RISK IN EXCESS OF 1 X 10-5, OR PCB CONCENTRATION ABOVE 2 PPM. THESE CANCER RISKS ARE EXTREMELY CONSERVATIVE, AS THEY ARE BASED ON A 40 YEAR EXPOSURE, WHILE THE MAXIMUM LIKELY EXPOSURE TO THE NON-SURFACE SOILS WOULD BE SHORT-TERM WHILE PLACING UTILITIES OR FOUNDATIONS ON THESE PROPERTIES FOR LIGHT INDUSTRIAL DEVELOPMENTS. THE COVER/CAP WILL PROVIDE ADDITIONAL PROTECTION AGAINST RELEASE TO THE GROUNDWATER, SURFACE WATER, OR TO THE PUBLIC (THROUGH INHALATION).

ALTERNATIVES CONSIDERED IN THE FEASIBILITY STUDY FOR OFF-PROPERTY AREAS FOR REMEDYING DIRECT CONTACT WERE NO ACTION, MULTILAYER RCRA CAPPING, AND ONE FOOT OR THREE FEET OF EXCAVATION AND FILL. OTHER ALTERNATIVES RAISED DURING OR AFTER THE COMMENT PERIOD INCLUDE TOTAL EXCAVATION TO THE WATER TABLE, HOT SPOT EXCAVATION IN THE TOP 4 FEET, EXCAVATION TO BACKGROUND, AND DEED OR TITLE RESTRICTIONS.

THE OTHER ALTERNATIVES FOR OFF-PROPERTY AREAS ARE NOT AS PROTECTIVE OF PUBLIC HEALTH OR ARE NOT COST-EFFECTIVE, OR HAVE INSTITUTIONAL PROBLEMS. FOR THOSE SOILS ABOVE BACKGROUND, NO ACTION AND A UNIFORM ONE FOOT EXCAVATION ARE NOT AS PROTECTIVE OF PUBLIC HEALTH. A UNIFORM 3 FOOT EXCAVATION WOULD BE MORE COSTLY THAN THE RECOMMENDED ALTERNATIVE WHILE PROVIDING FEWER PUBLIC HEALTH BENEFITS BECAUSE THERE WOULD BE LESS DEPTH OF HOT SPOTS REMOVED. THE PROPERTY OWNERS DO NOT WANT A MULTILAYER RCRA CAP ON THEIR PROPERTIES WHICH MAY DISRUPT THEIR DEVELOPMENT PLANS FOR THEIR PROPERTIES. AS A REFLECTION OF COMMUNITY DESIRES, THE CITY OF KENT ALSO STRONGLY SUPPORTS MEASURES THAT WILL ALLOW THESE PROPERTIES TO BE DEVELOPED.

SELECTION OF DISPOSAL FACILITY

THE PROPOSED ALTERNATIVE INVOLVES BOTH ON-SITE AND OFF-SITE DISPOSAL. TO MINIMIZE UNNECESSARY UTILIZATION OF LIMITED DOUBLE-LINED LANDFILL CAPACITY, AND TO REDUCE COSTS ASSOCIATED WITH THIS REMEDIAL ACTION, CONTAMINATED SOILS WHICH ARE CURRENTLY OFF-SITE AND WHICH ARE NOT WDOE EXTREMELY HAZARDOUS WASTES AND WHICH DO NOT CONTAIN PCBS MAY BE BROUGHT ON TO AREA I FOR PLACEMENT UNDER THE EVENTUAL CAP, AND/OR TO BE HANDLED AS PART OF ANY IN-SITU TREATMENT OR STABILIZATION. THIS CONSOLIDATION OF WASTES FROM RELEASES FROM WESTERN PROCESSING IS CONSIDERED TO BE FULLY COMPLIANT WITH THE APPLICABLE AND RELEVANT PROVISIONS OF RCRA. THE SOILS WHICH WILL BE BROUGHT ONTO AREA I WILL GENERALLY BE LESS CONTAMINATED THAN THE CURRENT AREA I SITE AVERAGE SOIL CONTAMINATION, AND WILL BE A MUCH SMALLER VOLUME THAN THE TOTAL AMOUNT OF ON-SITE CONTAMINATED SOILS AND WASTES, BUT MAY BE A LARGER VOLUME THAN THE SOILS AND WASTES WHICH WILL BE EXCAVATED AND TAKEN TO OFF-SITE DISPOSAL FROM AREA I. THE PLACEMENT OF OFF-SITE SOILS WOULD BE SCHEDULED TO OCCUR AFTER COMPLETION OF THE ON-SITE EXCAVATION. A CLEAN SURFACE (E.G. GRAVEL) WOULD BE PLACED ON TOP OF ALL SOIL TO PROVIDE A CLEAN WORK SURFACE FOR THE GROUNDWATER EXTRACTION SYSTEM. CAREFUL DESIGN WILL BE NEEDED TO ENSURE THAT THE CONTAMINATED SOIL WILL NOT ADD SUFFICIENT DEPTH TO INTERFERE WITH THE OPERATION OF THE WELL POINT SYSTEM.

OFF-SITE TRANSPORT AND DISPOSAL OF SOME OF THE HAZARDOUS SUBSTANCES IS NECESSARY TO PROTECT PUBLIC HEALTH, WELFARE AND THE ENVIRONMENT FROM A PRESENT OR POTENTIAL RISK AND TO IMPROVE THE RELIABILITY OF THE PROPOSED REMEDIAL ACTIONS. EXCAVATION AND REMOVAL TO AN OFF-SITE DISPOSAL FACILITY WOULD INCLUDE TRANSPORTATION IN ACCORDANCE WITH DOT REGULATIONS, DISPOSAL IN A GOVERNMENT APPROVED FACILITY, AND REPLACEMENT WITH CLEAN FILL IF THE EXCAVATION IS NOT IN AREA I. SELECTION OF A DISPOSAL FACILITY WILL BE IN ACCORDANCE WITH THE GUIDELINES IN THE ACTING ASSISTANT ADMINISTRATOR, OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, JACK W. MCGRAW'S MAY 6, 1985 MEMORANDUM PROCEDURES FOR PLANNING AND IMPLEMENTING OFF-SITE RESPONSE ACTIONS. THIS POLICY REQUIRES THAT, AMONG OTHER ITEMS, ALL OFF-SITE DISPOSAL OF HAZARDOUS WASTE MUST USE DISPOSAL FACILITIES AND UNITS WHICH HAVE AT LEAST TWO LINERS AND A LEACHATE DETECTION, COLLECTION AND REMOVAL SYSTEM ABOVE AND BETWEEN THE LINERS. IN ADDITION, THE FACILITY MUST HAVE NO SIGNIFICANT RCRA VIOLATIONS (AS DETERMINED BY EPA), UNLESS THE OWNER OR OPERATOR OF THE FACILITY HAS COMMITTED THROUGH AN ENFORCEABLE AGREEMENT WITH THE GOVERNMENT TO CORRECT THE PROBLEM. THE SITES MUST BE INSPECTED WITHIN SIX MONTHS OF DISPOSAL OF THE CERCLA WASTE.

SHALLOW GROUNDWATER

THE RECOMMENDED ALTERNATIVE FOR THE SHALLOW GROUNDWATER COMPONENT IS A GROUNDWATER EXTRACTION SYSTEM IN AREAS I, II, V, AND IX, UNLESS DESIGN STUDIES DEMONSTRATE THAT A SMALLER ARRAY WILL BE SUFFICIENT TO ESTABLISH AN INWARD HYDRAULIC GRADIENT THROUGHOUT THE CURRENTLY CONTAMINATED SHALLOW GROUNDWATER ZONE. THE RECOMMENDED ALTERNATIVE INCLUDES LOW CAPITAL COST IN SITU CHEMICAL LEACHING TECHNIQUES AFTER MONITORING THE SITE TO ENSURE THAT ADEQUATE GRADIENT CONTROL HAS BEEN ESTABLISHED AND AFTER SUFFICIENT LABORATORY SCALE TESTING. INSTITUTIONAL CONTROLS TO PERMANENTLY PREVENT THE EXTRACTION AND BENEFICIAL USE OF THE ZONE OF CONTAMINATED GROUNDWATER WILL ALSO BE NECESSARY PRIOR TO SITE CLOSE-OUT.

THE OBJECTIVES FOR THE SHALLOW GROUNDWATER COMPONENT ARE: (1) NO DEGRADATION OF THE SHALLOW GROUNDWATER BEYOND THE CURRENTLY CONTAMINATED ZONE, AND (2) A REDUCTION IN GROUNDWATER CONTAMINATION CONCENTRATION TO LEVELS THAT WILL PROTECT THE AQUATIC ORGANISMS IN MILL CREEK (SEE THE MILL CREEK COMPONENT SECTION). THESE OBJECTIVES WILL BE ACHIEVED AT LEAST PARTLY BY A WELL-POINT GROUNDWATER EXTRACTION SYSTEM, WITH TREATMENT AND DISCHARGE OF THE EXTRACTED WATER TO METRO. THE CLEAN-UP OF WESTERN PROCESSING WILL NOT BE CONSIDERED TO BE COMPLETE UNTIL THESE OBJECTIVES ARE ACHIEVED AND CONTINUE TO BE ACHIEVED AFTER TERMINATION OF THE GROUNDWATER EXTRACTION SYSTEM OPERATIONS.

THE ALTERNATIVES CONSIDERED IN THE FEASIBILITY STUDY INCLUDED NO ACTION, PUMP FOR FIVE YEARS, PUMP FOR 30 YEARS, PUMP FOR 120 YEARS, AND EXCAVATE 300,000 CUBIC YARDS OF SOIL WHILE PUMPING FOR FOUR YEARS. BECAUSE OF THE UNKNOWNS IN PREDICTING GROUNDWATER AND CONTAMINANT BEHAVIOR IN THIS SYSTEM, AS DEMONSTRATED IN THE ANALYSIS IN THE FEASIBILITY STUDY, ONLY A PHASED REMEDY FOR THE SHALLOW GROUNDWATER COMPONENT CAN BE ADDRESSED AT THIS TIME.

AS DESCRIBED IN THE ALTERNATIVES CONSIDERED SECTION, A NUMBER OF INNOVATIVE TECHNOLOGIES WERE BROUGHT TO EPA'S ATTENTION AFTER THE FEASIBILITY STUDY WAS COMPLETED. THE PRELIMINARY TESTING COLUMN TESTING FOR ENHANCED LEACHING OF WESTERN PROCESSING SOILS INDICATES THAT METALS REMOVAL CAN BE ACCELERATED SEVERAL TIMES. LEACHING SOLUTIONS APPLIED TO THE SITE WOULD BE COLLECTED BY THE WELL POINT SYSTEM. HOWEVER WHILE THESE TECHNIQUES MAY WORK IN THEORY OR IN LAB SCALE TESTS, THESE LEACHING TECHNIQUES MAY HAVE REAL LIFE PRACTICAL OR COST-EFFECTIVE LIMITS IN THE FIELD. PILOT SCALE TESTS MAY BE NECESSARY. OTHER TECHNIQUES SUCH AS IN-SITU STABILIZATION MAY BECOME MORE FEASIBLE OVER THE NEXT FEW YEARS AND MAY MAKE IT POSSIBLE TO ACHIEVE THE SHALLOW GROUNDWATER OBJECTIVE BY IMMOBILIZING THE METALS RATHER THAN REMOVING THEM.

THE INITIAL CAPITAL COST OF THE SELECTED ALTERNATIVE IS ESTIMATED TO BE $6,800,000 IF THE TREATMENT PLANT IS DESIGNED TO HANDLE ENHANCED LEACHING. THE ANNUAL O&M EXPENSES ARE ESTIMATED TO BE $1,500,000 TO $2,500,000 (IN CONSTANT 1985 DOLLARS) FOR THE FIRST 15 YEARS. FIFTEEN YEARS IS THE ESTIMATED LIFESPAN FOR THE MAJOR EQUIPMENT ITEMS. THE O&M EXPENSES ARE DEPENDENT ON WHETHER THE ENHANCED LEACHING SYSTEM IS OPERATING. IF DETAILED DESIGN STUDIES DISCLOSE THAT THE COSTS ASSOCIATED WITH ENHANCED LEACHING ARE SIGNIFICANTLY ABOVE THESE ESTIMATES, A DECISION ON ENHANCED LEACHING WILL BE POSTPONED TO THE NEXT PHASE OF REMEDIAL ACTION.

THE FIRST PERFORMANCE STANDARD - NO FURTHER DEGRADATION OF THE SHALLOW GROUNDWATER - WILL BE ACHIEVED BY PLACING MONITORING WELLS AND CHECKING THEIR WATER LEVELS AND QUALITY. THE SHALLOW GROUNDWATER FLOW PATTERN IS LARGELY CONTROLLED BY THE PRESENCE OF MILL CREEK AND THE EAST DRAIN.

THE SECOND PERFORMANCE STANDARD - WATER QUALITY PROTECTIVE OF AQUATIC ORGANISMS IN MILL CREEK - IS EXPECTED TO BE ACHIEVABLE RELATIVELY QUICKLY ON A TEMPORARY BASIS WHEN THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM CHANGES HYDRAULIC GRADIENTS AND STOPS THE GROUNDWATER DISCHARGE TO MILL CREEK. ACHIEVING THE STANDARD ON A PERMANENT BASIS (E.G. WITHOUT THE OPERATION OF THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM) WILL REQUIRE A REDUCTION IN THE SITE GROUNDWATER CONCENTRATION OF THE INORGANICS WITH THE LARGEST LOADING TO MILL CREEK FROM THE WESTERN PROCESSING SITE, NAMELY ZINC, CADMIUM, AND POSSIBLY CHROMIUM. BASED ON A MASS BALANCE/DILUTION ANALYSIS, CH2M HILL HAS DETERMINED THAT THE GROUNDWATER TARGET LEVELS TO MEET CREEK WATER QUALITY CRITERIA ARE ZINC AT 500 PPB AND CADMIUM AT 10 PPB. TO ACHIEVE THESE GROUNDWATER TARGET LEVELS, OVER 99 PERCENT OF THE AVAILABLE (MOBILE) ZINC AND CADMIUM WOULD HAVE TO BE REMOVED FROM THE SITE. ASSUMING ALL

OF THE ZINC AND CADMIUM MEASURED AT THE SITE IS AVAILABLE, OVER 120 YEARS OF GROUNDWATER PUMPING WOULD BE REQUIRED TO ACHIEVE THE REQUIRED LEVELS.

ORIGINALLY, ANOTHER OBJECTIVE OF THE SHALLOW GROUNDWATER COMPONENT WAS TO IMPROVE THE SHALLOW GROUNDWATER AT THE BOUNDARY OF AREA I TO DRINKING WATER STANDARDS. HOWEVER, THIS STANDARD MAY NOT BE ACHIEVABLE FOR TECHNOLOGICAL REASONS. WHILE ORGANIC CONTAMINANTS CAN BE MOSTLY ELIMINATED FROM THE SHALLOW GROUNDWATER SYSTEM (OR REDUCED BELOW DRINKING WATER STANDARDS OR CRITERIA) IN 5 TO 30 YEARS OF PUMPING, SOME OF THE INORGANICS FOUND BELOW THE SITE COULD NOT BE REDUCED TO DRINKING WATER STANDARDS IN OVER 120 YEARS OF PUMPING, THOUGH THE TECHNOLOGIES WHICH MAY BE NECESSARY TO PRODUCE GROUNDWATER QUALITY WHICH WILL PROTECT MILL CREEK WILL ALSO GREATLY REDUCE THE CONCENTRATIONS OF THOSE INORGANICS FOR WHICH THERE ARE DRINKING WATER STANDARDS.

IF GROUNDWATER CANNOT BE RETURNED TO MCLS OR OTHER HEALTH BASED CRITERIA (E.G. ACCEPTABLE EXCESS CANCER RISK LEVELS OR ADIS), ACLS MAY BE ESTABLISHED IN A FUTURE ROD. THE ACLS MAY UTILIZE INSTITUTIONAL CONTROLS. INSTITUTIONAL CONTROLS ON BOTH THE STATE AND LOCAL LEVEL MAY BE PROPOSED TO ENSURE THAT THERE WILL BE NO THREATS TO PUBLIC HEALTH FROM THIS CONTAMINATED GROUNDWATER. WDOE MAY BE ABLE TO RESTRICT GROUNDWATER EXTRACTED AT RATES OVER 5000 GPM, BUT HAS NO CONTROL OVER DOMESTIC SIZED WITHDRAWALS. HOWEVER, THE INDUSTRIAL ZONING OF THE AREA, ALTERNATE WATER SUPPLIES, AND CITY CONTROLS SHOULD PRECLUDE THE SMALLER SIZED WITHDRAWALS.

FORCES OTHER THAN INSTITUTIONAL CONTROLS ARE MORE LIKELY TO ENSURE THAT NO ONE WITHDRAWS THIS WATER FOR USE. THE SHALLOW GROUNDWATER UNDER THE SITE, AS DISCUSSED IN THE SECTION ON CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS, IS NOT AN IMPORTANT GROUNDWATER SOURCE IN THE KENT AREA BECAUSE OF GENERALLY LOW YIELD (LESS THAN 100 GPM) AND POOR WATER QUALITY. LARGE AMOUNTS OF EXCELLENT QUALITY WATER ARE AVAILABLE FROM THE CITY OF KENT PRODUCTION AND DISTRIBUTION SYSTEM. THE AGENCY'S ORIGINAL CONCERNS FOR THE THREATS TO THE CITY OF KENT WATER SUPPLY WELLS HAVE TURNED OUT TO BE UNFOUNDED, AS THE ARTESIAN AQUIFER ONLY EXISTS AT THE MARGINS OF THE VALLEY, NOT BELOW WESTERN PROCESSING.

MILL CREEK

THE OBJECTIVE FOR REMEDIAL ACTION IN MILL CREEK IS TO ELIMINATE THOSE WATER QUALITY CONDITIONS IN MILL CREEK WHICH LIMIT AQUATIC ORGANISMS OF CONCERN AND WHICH ARE CAUSED BY WESTERN PROCESSING. THIS OBJECTIVE WILL BE MET BY GROUNDWATER CONTROL, SHALLOW GROUNDWATER QUALITY IMPROVEMENT, AND SEDIMENT EXCAVATION.

THE PERFORMANCE STANDARD IS TO RETURN MILL CREEK WATERS AND SEDIMENTS TO AMBIENT WATER QUALITY CRITERIA FOR AQUATIC ORGANISMS OR TO UPSTREAM (CREEK OR GROUNDWATER) BACKGROUND, WHICHEVER IS LESS STRINGENT. HOWEVER MILL CREEK HAS A NUMBER OF UNUSUAL CONDITIONS WHICH WOULD EXIST EVEN IF WESTERN PROCESSING WERE NOT PRESENT. THESE INCLUDE BACKGROUND (UPSTREAM) CONCENTRATIONS OF CERTAIN METALS AND ORGANICS ABOVE WATER QUALITY CRITERIA FOR AQUATIC ORGANISMS AND BACKGROUND GROUNDWATER CONCENTRATIONS WHICH ARE ALSO ABOVE WATER QUALITY CRITERIA. THE UPSTREAM CONCENTRATIONS ABOVE CRITERIA ARE PROBABLY FROM BOTH OTHER SOURCES OF POLLUTANTS AND THE HIGH NATURAL GROUNDWATER CONCENTRATIONS OF METALS.

THE LACK OF VALUABLE AQUATIC ORGANISMS IN MILL CREEK IS PROBABLY MORE FROM THE MANY SOURCES OF POLLUTANTS AND HABITAT MODIFICATIONS IN MILL CREEK, THAN FROM THE HIGH BACKGROUND GROUNDWATER CONCENTRATIONS. THE AQUATIC WATER QUALITY CRITERIA ARE BASED ON THE MOST SENSITIVE SPECIES. A REVIEW OF THE CRITERIA DEVELOPMENT DOCUMENTS SHOW THAT THE FISH OF MOST CONCERN IN MILL CREEK - NAMELY SALMONIDS AND TROUT - CAN LIVE IN ZINC CONCENTRATIONS MUCH HIGHER THAN THE FEDERAL WATER QUALITY CRITERIA. SIMILAR INFORMATION IS AVAILABLE ON CADMIUM.

THE EAST DRAIN WATER AND SEDIMENT QUALITY WILL ALSO BE IMPROVED WITH A COMBINATION OF GROUNDWATER CONTROL, SHALLOW GROUNDWATER QUALITY IMPROVEMENT, AND SEDIMENT EXCAVATION.

IN ADDITION, THE RECOMMENDED ALTERNATIVE INCLUDES A SEDIMENT EXCAVATION PROGRAM TO REMOVE SEDIMENTS CONTAMINATED WITH METALS IN A BIOAVAILABLE FORM BECAUSE OF THE POTENTIAL THREATS TO BOTTOM-DWELLING OR BOTTOM-FEEDING ORGANISMS. THIS REMOVAL WOULD BE PLANNED FOR AFTER THE GROUNDWATER CONTROL SYSTEM HAS BEEN EFFECTIVE IN STOPPING GROUNDWATER DISCHARGE FROM WESTERN PROCESSING TO THE CREEK. AT AMINIMUM, THE STREAM LENGTH TO BE EXCAVATED WOULD EXTEND FROM THE UPSTREAM END OF AREA 5 TO DOWNSTREAM OF THE RAILROAD DRAINAGE DITCH DISCHARGE. ADDITIONAL DOWNSTREAM AREAS OF KNOWN DEPOSITION WOULD BE TESTED FOR BIOAVAILABLE METALS WHICH CAME FROM WESTERN PROCESSING.

OTHER ALTERNATIVES FOR MILL CREEK PRESENTED IN THE FEASIBILITY STUDY WERE NO ACTION AND GROUNDWATER CONTROL TO ACHIEVE THE WATER QUALITY CRITERIA BUT NO SEDIMENT EXCAVATION. THE GROUNDWATER CONTROL ONLY ALTERNATIVE WOULD BE PROTECTIVE OF THE ENVIRONMENT, BUT WOULD TAKE LONGER TO REMEDY THE PROBLEM. THE GROUNDWATER CONTROL ONLY ALTERNATIVE WOULD ALLOW NATURAL SEDIMENT TRANSPORT TO CLEAN OUT THE SEDIMENTS OVER A NUMBER OF YEARS. THE RECOMMENDED ALTERNATIVE IS MORE QUICKLY PROTECTIVE OF THE ENVIRONMENT AND IS THUS A COST-EFFECTIVE ALTERNATIVE.

STORM WATER CONTROLS

STORM WATER MUST BE MANAGED BOTH ON AND OFF THE WESTERN PROCESSING SITE, AS WELL AS DURING AND AFTER CONSTRUCTION. THE PRPS HAVE BEEN COLLECTING AND TREATING AREA I STORMWATER PRIOR TO DISCHARGE TO THE METRO SYSTEM. IF NECESSARY, A SIMILAR SYSTEM WILL BE CONTINUED BY EPA AND WDOE UNTIL CONSTRUCTION BEGINS. DURING CONSTRUCTION ON AND OFF THE WESTERN PROCESSING PROPERTY, ALL STORMWATER MUST BE HANDLED ACCORDING TO GOOD CONSTRUCTION PRACTICES. THIS MAY INCLUDE COLLECTING AND TREATING THE WATER PRIOR TO DISCHARGE. AFTER AREA I IS CAPPED, CLEAN STORMWATER WILL RUN OFF THE SITE, WITH THE RATE AND QUANTITIES CONSISTENT WITH THE CITY OF KENT'S STORMWATER ORDINANCES. THE OFF-PROPERTY COVERED/CAPPED AREAS WILL REQUIRE MAINTENANCE TO ENSURE THAT EROSION AND SEDIMENTATION WILL NOT OCCUR.

BESIDES NO ACTION, THERE ARE THREE OTHER ALTERNATIVES FOR HANDLING AREA I STORMWATER DURING THE GROUNDWATER PUMPING PERIOD. (THE FINAL RCRA CAP WOULD BE PLACED ON THE SITE AFTER PUMPING IS COMPLETED.). THESE ARE: 1) CONTINUED COLLECTION, TREATMENT, AND DISCHARGE TO METRO OF THE STORMWATER; 2) A TEMPORARY COVER/CAP ON THE SITE WHICH WOULD ALLOW THE WATER RUNNING OFF THE PROPERTY TO BE UNCONTAMINATED; AND 3) STORE THE STORMWATER ON THE SITE AND ALLOW IT TO INFILTRATE THROUGH THE UNSATURATED ZONE. THE NO ACTION ALTERNATIVE IS NOT PROTECTIVE OF PUBLIC HEALTH OR THE ENVIRONMENT. COLLECTION, TREATMENT, AND DISCHARGE OF THE STORMWATER WOULD HAVE THE HIGHEST O&M OF ANY OF THESE ALTERNATIVES, AND WOULD USE UP A LARGE PERCENTAGE OF THE POTENTIAL SEWER LINE CAPACITY WHICH WILL BE NEEDED FOR DISCHARGE OF THE TREATED GROUNDWATER. OF THE OTHER TWO ALTERNATIVES, THE INFILTRATION OF THE RAINWATER IS THE RECOMMENDED ALTERNATIVE BECAUSE IT WILL ENHANCE THE LEACHING OF THE METALS AND LOWER THE OPERATING COSTS FOR THE ACID LEACHING SYSTEM.

THE CAPITAL COST OF THE RECOMMENDED ALTERNATIVE IS INCLUDED IN THE GRADING TO INSTALL THE GROUNDWATER PUMPING SYSTEM.

MONITORING

THE RECOMMENDED ALTERNATIVE INCLUDES AN EXTENSIVE MONITORING PROGRAM DESIGNED TO MONITOR THE EFFECTIVENESS OF THE REMEDIAL ACTION, TO PROVIDE INFORMATION FOR FUTURE PHASES OF THE REMEDIAL ACTION, AND TO INVESTIGATE THE DEEPER REGIONAL (50 TO 150 DEEP) GROUNDWATER CONDITIONS.

THIS MONITORING PROGRAM WILL INCLUDE:

- NINE TO TWELVE WELL CLUSTERS ENCIRCLING THE CONTAMINATED GROUNDWATER ZONE, WITH 6 TO 8 SHALLOW WELLS SCREENED AT 10 TO 30 FEET WITHIN THE CONTAMINATED ZONE. THE WELL CLUSTERS WILL INCLUDE WELLS SCREENED AT 10 TO 30 FEET; 40 TO 60 FEET; AND 80 TO 100 FEET BELOW THE SURFACE. AT LEAST THREE CLUSTERS WILL INCLUDE A WELL SCREENED AT 120 TO 140 FEET BELOW THE SURFACE.

- MILL CREEK AND EAST DRAIN WATER AND SEDIMENTS UPSTREAM AND DOWNSTREAM OF THE WESTERN PROCESSING SITE.

- AIR MONITORING FOR ORGANICS AND PARTICULATES DURING CONSTRUCTION.

MOST ALTERNATIVES IN THE FEASIBILITY STUDY HAD GROUNDWATER MONITORING. THE NO ACTION ALTERNATIVE IS NOT ADEQUATELY PROTECTIVE OF PUBLIC HEALTH AND THE ENVIRONMENT, AND WOULD NOT COMPLY WITH THE RCRA GROUNDWATER PROTECTION STRATEGY.

MONITORING COSTS ARE ESTIMATED TO BE $540,000 PER YEAR.

COMMUNITY RELATIONS

A MAJOR COMMENT DURING THE PUBLIC COMMENT PERIOD ON THE FEASIBILITY STUDY WAS THE INTERESTED COMMUNITY'S DESIRE TO HAVE ACCESS TO MONITORING DATA AND OTHER INFORMATION ON THE STATUS OF THE SITE BEFORE SIGNIFICANT DECISIONS ARE MADE. EPA INTENDS TO REMAIN THE LEAD AGENCY FOR COMMUNITY RELATIONS, WITH ACTIVE PARTICIPATION BY WDOE AND THE CONTRACTORS.

ACTIVITIES WILL INCLUDE:

- PUBLIC PRESENTATIONS ON THE PROGRESS OF WORK ON THE WESTERN PROCESSING SITE, WITH THE FREQUENCY AND LOCATION TO BE GUIDED BY PUBLIC INTEREST AND THE CITY OF KENT. A SUGGESTED APPROACH IS FOR MONTHLY PRESENTATIONS AT THE CITY OF KENT CITY COUNCIL WORKSHOPS THROUGHOUT THE DESIGN AND ACTIVE REMEDIAL CONSTRUCTION PERIOD, WITH QUARTERLY OR ANNUAL PRESENTATIONS DURING THE EXTENDED O&M AND MONITORING PERIODS.

- PREPARATION AND DISTRIBUTION OF A PUBLIC NOTICE AND FACT SHEET AT THE COMPLETION OF ENGINEERING DESIGN.

- CONTINUATION OF THE INFORMATION REPOSITORY AT THE CITY OF KENT AND EPA REGIONAL LIBRARY. AT A MINIMUM, COPIES OF ALL PUBLIC AND PRESS RELEASES; QAED GROUNDWATER, SURFACE WATER, SOIL, SEDIMENT, AND AIR MONITORING DATA; SUPPLEMENTAL REMEDIAL PLANNING DOCUMENTS AND ALL OTHER SIMILAR DOCUMENTS WILL BE PLACED IN THESE REPOSITORIES PROMPTLY.

- PUBLIC PRESENTATIONS ON THE SUPPLEMENTAL PLANNING STUDIES, IF ANY ARE INITIATED. PUBLIC PRESENTATIONS WOULD, AT A MINIMUM, BE MADE DURING THE DESIGN OR SCOPING OF THE STUDY, AND AGAIN WHEN THE STUDY IS COMPLETED AND RECOMMENDATIONS ARE MADE. THESE PUBLIC PRESENTATIONS MAY BE PART OF THE ABOVE REGULAR PUBLIC PRESENTATIONS, WITH ADDITIONAL PUBLIC ANNOUNCEMENTS ON THE AGENDA OF THE PRESENTATION.

OTHER ISSUES

ANY CONSTRUCTION IN THE FLOOD HAZARD AREAS IN MILL CREEK WILL BE DESIGNED TO NOT ADVERSELY CHANGE FLOOD ELEVATIONS AND TO COMPLY AS MUCH AS PRACTICABLE WITH ALL APPLICABLE LOCAL RULES, REGULATIONS, AND ORDINANCES.

COSTS

THE ESTIMATED COSTS (+50% TO -30%) FOR THE RECOMMENDED ALTERNATIVE IS:

DETAILED DESIGN (OF WHICH, $1,625,000 IS FOR SOIL AND WASTE SAMPLING AND ANALYSIS.)	$3,415,000	
CAPITAL COSTS		
ON-SITE SOILS	$5,200,000	
OFF-SITE SOILS	625,000	
GROUNDWATER PUMP AND TREAT	6,800,000	
ENHANCED LEACHING	2,600,000	
MILL CREEK EXCAVATION	1,300,000	
TOTAL		18,100,000
OPERATION AND MAINTENANCE ANNUALLY, DURING INITIAL PHASE OF SYSTEM OPERATION		
WITHOUT ENHANCED LEACHING	2,000,000	
WITH ENHANCED LEACHING	3,000,000.	

THE PRESENT WORTH OF THE PROPOSED ALTERNATIVE FOR THE FIVE YEARS OF INITIAL SYSTEM OPERATION IS ESTIMATED TO BE $26,300,000, NOT INCLUDING DETAILED DESIGN AND SOIL SAMPLING AND ANALYSIS.

MOST OF THESE COSTS ARE BASED ON THE DATA IN THE FEASIBILITY STUDY. THE COSTS FOR THE ENHANCED LEACHING AND SOIL SAMPLING PROGRAMS WERE DEVELOPED AFTER THE FEASIBILITY STUDY WAS COMPLETED.

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CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

THE FOLLOWING FEDERAL ENVIRONMENTAL STANDARDS ARE APPLICABLE TO REMEDIAL ACTIONS AT THE WESTERN PROCESSING SITE:

- HAZARDOUS WASTE REGULATIONS (RCRA), SUBPART G - CLOSURE AND POST-CLOSURE

- HAZARDOUS WASTE REGULATIONS (RCRA), SUBPART F - GROUNDWATER PROTECTION REQUIREMENTS, INCLUDING POTENTIAL ACLS FOR THE MOST TOXIC AND PERSISTENT CHEMICALS

- HAZARDOUS WASTE REGULATIONS (RCRA) RELATING TO COMPLIANCE AT OFF-SITE DISPOSAL FACILITIES

- CLEAN WATER ACT PRETREATMENT STANDARDS FOR DISCHARGE INTO A PUBLICLY OWNED TREATMENT WORKS

- TSCA REQUIREMENTS FOR PCB DISPOSAL

- GUIDELINES FOR SPECIFICATION OF DISPOSAL SITES FOR DREDGED OR FILL MATERIAL

- NATIONAL AMBIENT AIR QUALITY STANDARDS

- FLOODPLAINS EXECUTIVE ORDER
- OSHA REQUIREMENTS
- DOT HAZARDOUS MATERIALS TRANSPORT REGULATIONS.

THE FOLLOWING FEDERAL ENVIRONMENTAL STANDARDS ARE RELEVANT TO REMEDIAL ACTIONS AT THE WESTERN PROCESSING SITE:

- WATER QUALITY STANDARDS FOR MILL CREEK, AS DETERMINED BY THE STATE OF WASHINGTON UNDER THE CLEAN WATER ACT, IF THERE IS A SURFACE WATER DISCHARGE.

THE FOLLOWING FEDERAL ENVIRONMENTAL CRITERIA, GUIDANCE, AND ADVISORIES ARE TO BE CONSIDERED IN REMEDIAL ACTIONS AT THE WESTERN PROCESSING SITE:

- RMCL
- FEDERAL WATER QUALITY CRITERIA
- EPA'S GROUNDWATER PROTECTION STRATEGY
- FLOODPLAIN EXECUTIVE ORDER.

THE FOLLOWING STATE ENVIRONMENTAL CRITERIA, GUIDANCE, AND ADVISORIES ARE TO BE CONSIDERED IN REMEDIAL ACTIONS AT THE WESTERN PROCESSING SITE:

- STATE GROUNDWATER APPROVAL
- STATE HOW CLEAN IS CLEAN POLICY.

THE RCRA SUBPART G - CLOSURE AND POST-CLOSURE - TECHNICAL REQUIREMENTS WERE APPLIED IN A NUMBER OF DIFFERENT WAYS. EXAMPLE ALTERNATIVE 2 WAS DESIGNED TO COMPLY WITH THE STANDARDS FOR CLOSURE AS AN EXISTING LAND DISPOSAL UNIT. EXAMPLE ALTERNATIVE 3 WAS DESIGNED TO COMPLY WITH THE STANDARDS FOR CLOSURE AS A NEW LAND DISPOSAL UNIT. EXAMPLE ALTERNATIVE 5 WAS DESIGNED TO COMPLY WITH THE STANDARDS FOR CLOSURE FOR A STORAGE FACILITY. THE RCRA SUBPART F GROUNDWATER PROTECTION TECHNICAL REQUIREMENTS WERE SATISFIED IN EXAMPLE ALTERNATIVES 2, 3, AND 5.

THE RECOMMENDED ALTERNATIVE IS AN INTERIM MEASURE. HOWEVER, THE RELEVANT AND APPLICABLE STANDARDS, CRITERIA, GUIDANCE, AND ADVISORIES HAVE BEEN CONSIDERED IN THE RECOMMENDED ALTERNATIVE WHENEVER PRACTICABLE.

ASPECTS OF THE RECOMMENDED ALTERNATIVE WHICH ARE COMPLIANT WITH THE APPLICABLE AND RELEVANT PORTIONS OF RCRA REGULATIONS INCLUDE:

- GROUNDWATER MONITORING
- PCB CLEAN-UP LEVELS (THE 2 PPM OFF-SITE LEVEL IS ALSO CONSISTENT WITH WDOE POLICY.).
- OFF-SITE SOIL COVER DESIGN AND MAINTENANCE
- TITLE/DEED RESTRICTIONS IF CERTAIN OFF-SITE AREAS ARE CAPPED INSTEAD OF EXCAVATED.

ASPECTS OF THE RECOMMENDED ALTERNATIVE WHICH ARE CONSISTENT WITH THE ASSISTANT ADMINISTRATOR'S APPLICATION OF RCRA TO THE CRYSTAL CHEMICAL CERCLA SITE INCLUDE:

- CONSOLIDATION ON-SITE OF HAZARDOUS SUBSTANCES WHICH HAVE MIGRATED OFF-SITE FROM WESTERN PROCESSING.
- WHEN COMBINED WITH THE RECOMMENDED ALTERNATIVE'S GROUNDWATER ACTIONS, THE OFF-SITE EXCAVATION CRITERIA.
- IN SITU STABILIZATION AND TREATMENT.

ASPECTS OF THE RECOMMENDED ALTERNATIVE FOR WHICH RCRA COMPLIANCE WILL BE DETERMINED IN THE NEXT PHASE OF REMEDIAL ACTION INCLUDE:

- ACCEPTABLE SHALLOW GROUNDWATER CONCENTRATION LIMITS.

- ON-SITE CAP DESIGN.
- TITLE/DEED RESTRICTIONS IN AREA I.

THE FEDERAL WATER QUALITY CRITERIA FOR AQUATIC ORGANISMS ARE USED TO SET THE MILL CREEK WATER QUALITY NEEDS IN ALL EXAMPLE ALTERNATIVES AND THE RECOMMENDED ALTERNATIVE. AS DESCRIBED BELOW IN THE RECOMMENDED ALTERNATIVE SECTION, THE RECOMMENDED ALTERNATIVE IS CONSISTENT WITH EPA'S GROUNDWATER PROTECTION STRATEGY. THE SHALLOW GROUNDWATER IS TECHNICALLY CLASS II, THOUGH IT HAS SOME ELEMENTS OF THE CLASS III DEFINITION. ALTERNATIVE WATER SUPPLIES ARE AVAILABLE.

OTHER KEY REQUIREMENTS WHICH WILL BE COMPLIED WITH INCLUDE: RCRA REQUIREMENTS AT OFF-SITE DISPOSAL FACILITIES; CLEAN WATER ACT PRETREATMENT STANDARDS FOR DISCHARGE INTO A PUBLICLY OWNED TREATMENT WORKS; TSCA REQUIREMENTS FOR PCB DISPOSAL; GUIDELINES FOR THE DISPOSAL OF DREDGED MATERIAL; AIR QUALITY STANDARDS; FLOODPLAIN PROTECTION REQUIREMENTS; DOE HAZARDOUS MATERIALS TRANSPORT REGULATIONS; AND THE STATE OF WASHINGTON WATER QUALITY STANDARDS FOR MILL CREEK.

THE STATE OF WASHINGTON DEPARTMENT OF ECOLOGY PARTICIPATED IN THE DEVELOPMENT OF THE FEASIBILITY STUDY AND HAS CONCURRED IN THE RECOMMENDED ALTERNATIVE.

#OM
OPERATION AND MAINTENANCE (O&M)

THE O&M ACTIVITIES REQUIRED TO ENSURE EFFECTIVENESS OF THE REMEDY INCLUDE:

- OPERATION OF THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM AS LONG AS NECESSARY
- MAINTENANCE OF THE RCRA ON-SITE CAP AND OFF-SITE CAPS/COVERS, AND STORMWATER CONTROL SYSTEM FOR A MINIMUM OF 30 YEARS
- LONG-TERM MONITORING OF THE SHALLOW AND DEEP GROUNDWATER, AND MILL CREEK WATER AND SEDIMENT QUALITY.

THESE O&M ACTIVITIES MAY BE REQUIRED IN PERPETUITY IF THESE OR OTHER REMEDIAL ACTIONS DO NOT MITIGATE THE RELEASES OR IF PROBLEMS ARE DETECTED. ALTERNATIVELY, CERTAIN OF THESE ACTIVITIES MAY BE ALLOWED TO CEASE AFTER EPA HAS DETERMINED THAT NO THREATS TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT WOULD OCCUR.

ANNUAL O&M COSTS WITH THE OPERATION OF THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM ARE ESTIMATED TO BE $2,000,000 TO $3,000,000 DEPENDING ON WHETHER THE ENHANCED LEACHING SYSTEM IS OPERATING. ANNUAL O&M COSTS WOULD BE LOWER WHEN THE GROUNDWATER EXTRACTION SYSTEM CEASES OPERATION.

BECAUSE THIS IS AN INTERIM REMEDY AND THE INITIAL PHASE OF SYSTEM OPERATION/CONSTRUCTION WILL REQUIRE UP TO FIVE YEARS, MONITORING AND THE OPERATIONS AND MAINTENANCE OF THE PUMPING SYSTEM FOR FIVE YEARS IS PART OF THE REMEDIAL ACTION WHICH WILL BE PAID FOR BY BOTH THE FUND AND WDOE. AN EPA/STATE CONTRACT OR COOPERATIVE AGREEMENT WILL BE THE MECHANISM FOR THIS O&M. WDOE ACKNOWLEDGES THAT O&M IN FUTURE YEARS WILL BE THE RESPONSIBILITY OF THE STATE.

#SCH
SCHEDULE

- COMPLETE ENFORCEMENT NEGOTIATIONS — SEPTEMBER, 1985
- APPROVE REMEDIAL ACTION (SIGN ROD) — SEPTEMBER, 1985
- AWARD IAG FOR REMEDIAL DESIGN TO COE — OCTOBER, 1985
- START DESIGN — NOVEMBER, 1985
- AWARD SUPERFUND STATE CONTRACT FOR CONSTRUCTION — APRIL 1986
- ADVERTISE FOR CONSTRUCTION BIDS — APRIL 1986
- START CONSTRUCTION — JUNE 1986
- COMPLETE MAJOR ON-SITE EXCAVATION — AUGUST 1986
- START GROUNDWATER EXTRACTION — 1987

FUND-FINANCED AND STATE FINANCED ACTIONS WILL BE NECESSARY FOR STORMWATER CONTROL ACTIONS UNTIL CONSTRUCTION STARTS IN 1986.

#FA
FUTURE ACTIONS

THE ADDITIONAL REMEDIAL ACTIVITIES WHICH ARE REQUIRED TO COMPLETE THE SITE RESPONSE MAY INCLUDE:

- SUPPLEMENTAL REMEDIAL PLANNING AND POSSIBLY A THIRD OPERABLE UNIT IF THE EXTENT OF GROUNDWATER CONTAMINATION IS NOT ADEQUATELY CONTROL BY THE SHALLOW GROUNDWATER EXTRACTION AND TREATMENT SYSTEM, IF THE CONTAMINATION IN THE SHALLOW GROUNDWATER IS NOT ADEQUATELY REDUCED BY THE SHALLOW GROUNDWATER EXTRACTION AND TREATMENT SYSTEM AND IN SITU CHEMICAL LEACHING, OR IF CONTAMINATION FROM WESTERN PROCESSING IS FOUND IN THE REGIONAL AQUIFER.

- SITE CLOSE-OUT WITH A CAP.

- LONG-TERM O&M ON THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM, CAP, COVER AND STORMWATER CONTROL SYSTEMS, AND MONITORING SYSTEMS.

#TMA
TABLES, MEMORANDA, ATTACHMENTS

#RS

COMMUNITY RELATIONS RESPONSIVENESS SUMMARY
WESTERN PROCESSING SUPERFUND SITE
KENT, WASHINGTON
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY FOR
SUBSURFACE CLEAN-UP

INTRODUCTION

A COMMUNITY RELATIONS PROGRAM HAS BEEN IN PLACE FOR TWO YEARS. DOE AND EPA HAVE TAKEN AN ACTIVE ROLE IN THIS PLAN. THE MAJOR ELEMENTS HAVE INCLUDED: MONTHLY INTERAGENCY MEETINGS WITH THE KENT CITY MAYOR AND HER STAFF; PUBLIC PRESENTATIONS/MEETINGS WHENEVER THE CITY OR CITY COUNCIL HAS REQUESTED IT; PRESS RELEASES AT ALL MAJOR EVENTS, SUCH AS THE RELEASE OF DATA OR REPORTS, OR THE START OF PARTICULAR ON-SITE ACTIVITIES; WIDE DISTRIBUTION OF PRESS RELEASES AND FACT SHEETS; AND THE AVAILABILITY OF GOVERNMENT STAFF BY PHONE TO RESPOND TO QUESTIONS FROM THE PUBLIC. PUBLIC INTEREST IS SPORADICALLY HIGH, THOUGH THE CITY OF KENT, CERTAIN NEIGHBORING PROPERTY OWNERS, AND A FEW INDIVIDUALS HAVE HAD A HIGH LEVEL OF CONTINUED INTEREST.

IN MID-MARCH 1985, A LETTER, A FACT SHEET, A SEPARATE EXECUTIVE SUMMARY, AND THE TWO VOLUME FEASIBILITY STUDY WAS MADE AVAILABLE TO THE PUBLIC. OVER 500 LETTERS, FACT SHEETS, AND EXECUTIVE SUMMARIES WERE SENT OUT. (THIS INCLUDES THE APPROXIMATELY 300 COPIES WHICH WERE SENT TO THE PRPS.). OVER 100 COPIES OF THE ENTIRE FEASIBILITY STUDY WERE SENT OUT TO INDIVIDUALS, PRPS, AND AGENCIES KNOWN TO BE INTERESTED IN THE SITE. A DOZEN COPIES WERE MADE AVAILABLE THROUGH THE LOCAL PUBLIC AND EPA REGIONAL LIBRARIES. IN ADDITION, COPIES WERE AVAILABLE FREE FROM EPA FOR THE ASKING. THE 30 DAY COMMENT PERIOD CLOSED APRIL 10, 1985. AS OF APRIL 26, 1985, 19 COMMENT LETTERS HAD BEEN RECEIVED. TABLE 1 LISTS THE LETTERS WHICH HAD BEEN RECEIVED. NO LETTERS WERE IDENTIFIABLE AS BEING FROM ANY PRP OR THE PRP COMMITTEE. COPIES OF ALL LETTERS HAVE BEEN PLACED IN THE LIBRARIES.

A SERIES OF FOUR PUBLIC MEETINGS/WORKSHOPS WERE HELD AT THE KENT CITY HALL. BY THE SECOND MEETING, VIRTUALLY ALL ATTENDEES WERE WHAT COULD BE CALLED "EXTREMELY OR FINANCIALLY INTERESTED PARTIES.". PRESENTATIONS WERE MADE BY THE PRP'S COORDINATING COMMITTEE'S CONSULTANTS, A NEIGHBORING PROPERTY OWNER'S CONSULTANTS, THE OWNER/OPERATOR OF WESTERN PROCESSING, THE MOST ACTIVE ENVIRONMENTALIST, AND THE FISHERIES BIOLOGIST OF THE LOCAL INDIAN TRIBE, AS WELL AS BY CH2M HILL. THE ON-GOING LAWSUIT BETWEEN THE NEIGHBORING PROPERTY OWNER AND THE PRPS LIMITED, TO SOME EXTENT, THE RANGE OF POTENTIAL EXCHANGES BETWEEN THOSE TWO PARTIES. SPECIAL SMALL BRIEFINGS WERE HELD FOR THE AFFECTED PROPERTY OWNERS, NATURAL RESOURCE AGENCIES, ENVIRONMENTALISTS, AND THE PRESS.

THE RESPONSIVENESS SUMMARY DOCUMENTS FOR THE PUBLIC RECORD THE COMMENTS RAISED DURING THE COMMENT PERIOD ON THE FEASIBILITY STUDY AND HOW EPA AND THE WDOE CONSIDERED AND RESPONDED TO THESE CONCERNS.

CONCERNS RAISED DURING THE COMMENT PERIOD

THE MAJOR ISSUES THAT WERE RAISED WERE:

1. ADEQUACY OF THE DATA TO DEFINE AN ADEQUATE REMEDIAL ACTION. STATEMENTS WERE MADE THAT THERE ISN'T ENOUGH DATA TO ANSWER ALL THE QUESTIONS OR TO DECIDE ON A REMEDIAL ACTION. THE MAJOR AREAS WHICH WERE AFFECTED BY THIS CONCERN ARE GROUNDWATER (IS THERE DEEP GROUNDWATER CONTAMINATION WHICH HAS REACHED THE REGIONAL FLOW SYSTEM?); MILL CREEK (HOW FAR DOWNSTREAM AND HOW DEEP ARE THE SEDIMENTS CONTAMINATED?); AND, TO A MUCH SMALLER EXTENT, SOIL (THERE ISN'T ENOUGH INFORMATION TO DETERMINE THE EXACT EXTENT (VERTICAL AND HORIZONTAL) OF CONTAMINATION SO THAT EXCAVATION OR CAPPING CAN BE DEFINED). DURING THE COMMENT PERIOD, MOST INTERESTED PARTIES AGREED THAT AT LEAST SOME COMPONENTS OF A REMEDIAL ACTION, ESPECIALLY ON-PROPERTY EXCAVATION WITH OFF-SITE DISPOSAL, COULD AND SHOULD BEGIN WHILE ANY MISSING DATA ARE COLLECTED.

2. ADEQUACY OF THE DATA TO DEMONSTRATE THAT THERE IS A PUBLIC HEALTH OR ENVIRONMENTAL PROBLEM. THE OWNER OF WESTERN PROCESSING PROVIDED A DETAILED CRITIQUE OF MANY OF THE GOVERNMENTS' AND PRPS' DOCUMENTS. IN HIS OPINION, THE DATA EITHER DOES NOT EXIST OR IS INADEQUATE OR IS UNSCIENTIFIC TO SUPPORT THE GOVERNMENTS' CONTENTION THAT THERE ARE ANY HAZARDS ASSOCIATED WITH THE SITE. SOME EXAMPLES ARE THAT THE FORMS OF LEAD AND CHROMIUM ON THE SITE ARE NON-HAZARDOUS, AND THAT WHERE AND WHEN THERE MAY BE DATA SHOWING CONTAMINATION, THAT CONTAMINATION IS THE RESULT OF THE GOVERNMENTS' ACTIONS OR FROM OTHER POLLUTION SOURCES. OTHER COMMENTORS QUESTIONED THE VALIDITY OR REALISM OF THE ENDANGERMENT ASSESSMENT BECAUSE ADULTS DON'T EAT SOIL AND NO ONE IS DRINKING THE SHALLOW GROUNDWATER.

3. FUTURE PUBLIC PARTICIPATION. A MAJOR COMMENT DURING THE PUBLIC COMMENT PERIOD ON THE FEASIBILITY STUDY WAS THE INTERESTED COMMUNITY'S DESIRE TO HAVE ACCESS TO MONITORING DATA AND OTHER INFORMATION ON THE STATUS

OF THE SITE BEFORE SIGNIFICANT DECISIONS ARE MADE. ANY FURTHER INFORMATION WHICH IS COLLECTED NEEDS TO BE SHARED WITH THE PUBLIC AND FURTHER PUBLIC INPUT REQUESTED BEFORE MAJOR DECISIONS ARE MADE.

4. PROPERTY VALUES AND FUTURE LAND USE. THE NEIGHBORING PROPERTY OWNERS ARE GREATLY CONCERNED ABOUT BEING ABLE TO PROFITABLY DEVELOP AND SELL THEIR LAND. THE CITY OF KENT WOULD PREFER THAT FUTURE USE OF THE WESTERN PROCESSING SITE FOR ROADS AND INDUSTRIAL DEVELOPMENT NOT BE FORECLOSED.

5. PROTECTION OF WORKERS DURING MAINTENANCE ACTIVITIES ON THE SURROUNDING UTILITIES. THE REMEDIAL ACTION SHOULD INCLUDE ACTIONS WHICH WILL PROTECT UTILITY EMPLOYEES WHO MUST IN THE FUTURE MAINTAIN THE SUBSURFACE UTILITIES NEAR THE SITE.

6. PREFERRED SUBSURFACE ALTERNATIVES. A MAJOR, THOUGH NOT ALWAYS SUCCESSFUL, GOAL OF THE PUBLIC COMMENT PERIOD AND MEETINGS WAS TO ENCOURAGE PARTICIPANTS TO COME UP WITH AND TO GIVE TO EPA CONSTRUCTIVE IDEAS AS TO HOW THE SITE SHOULD BE CLEANED UP, RATHER THAN TO FOCUS ON THE PROBLEMS THEY PERCEIVED IN THE FEASIBILITY STUDY. ALTERNATIVES WHICH INVOLVED EXCAVATION AND OFF-SITE DISPOSAL APPEARED TO BE FAVORED, WHILE ALMOST NO ONE GAVE SERIOUS CONSIDERATION TO ALTERNATIVE 3, THE ON-PROPERTY LANDFILL. IMPROVEMENT OF THE GROUNDWATER WAS ALSO FAVORED. HOWEVER, ONLY VERY GENERAL FEEDBACK WAS GIVEN TO EPA ON WHAT LEVELS OF "CLEAN" WERE CONSIDERED IMPORTANT. IT APPEARS THAT CLEAN WAS GENERALLY ASSUMED TO MEAN BACKGROUND (E.G. UPSTREAM) WATER QUALITY IN MILL CREEK, AND ADEQUATELY LOW SOIL CONTAMINATION TO ALLOW CITY AND THE HEALTH DEPARTMENT APPROVAL OF INDUSTRIAL DEVELOPMENTS. CAPPING AND THEN DEVELOPING THE ENTIRE AREA WAS SUGGESTED BY SOME OTHERS. OTHER IDEAS INCLUDED: LOWERING THE WATER TABLE AT THE SITE BY PLANTING POPLAR TREES AND JERUSALEM ARTICHOKES; INCINERATION OF THE SOIL; AND EXCAVATION AND THEN LINING THE SITE TO USE IT AS A STORMWATER DETENTION POND. QUESTIONS RAISED ABOUT THE PRPS PROPOSAL (EXAMPLE ALTERNATIVE 4) INCLUDE THE LOCATION OF AND EFFECT OF THE DIVERSION WALL, THE NUMBER OF YEARS OF GROUNDWATER EXTRACTION, AND THE NEED FOR OFF-SITE CLEAN-UP.

7. PREFERRED MILL CREEK ALTERNATIVES. A NUMBER OF PEOPLE SUGGESTED THAT REROUTING MILL CREEK COULD BE A GOOD SOLUTION TO THE WESTERN PROCESSING SITUATION. IN ADDITION, A NUMBER OF THE PROPERTY OWNERS ARE EXTREMELY INTERESTED IN HAVING MILL CREEK REROUTED SO THAT THE EXISTING CREEK BED COULD BE FILLED AND THEIR PROPERTY MORE EASILY AND FULLY DEVELOPED. THE NATURAL RESOURCE AGENCIES, THE INDIAN TRIBE, AND OTHERS ARE MOST CONCERNED THAT MILL CREEK WATER QUALITY AND FISH HABITAT ARE IMPROVED. EXCAVATION OF CONTAMINATED SEDIMENTS HARMFUL TO AQUATIC ORGANISMS WAS GENERALLY SUPPORTED.

RESPONSE TO COMMUNITY CONCERNS

1. ADEQUACY OF THE DATA TO DEFINE AN ADEQUATE REMEDIAL ACTION. THE PROPOSED REMEDIAL ACTION HAS BEEN STAGED TO ENSURE THAT THERE WILL BE ADEQUATE DATA TO MAKE THE NECESSARY DECISIONS ABOUT THE DETAILS OF THE REMEDIAL ACTION. SOME EXAMPLES INCLUDE:

A. EXTENSIVE ADDITIONAL SOIL SAMPLING PARTICULARLY OFF-SITE, WILL BE PERFORMED AS PART OF FINAL DESIGN OF THE REMEDIAL ACTION TO DETERMINE WHERE AND TO WHAT DEPTHS THERE ARE SOILS THAT SHOULD BE EXCAVATED.

B. THE FIRST SET OF LONG-TERM MONITORING WELLS HAVE BEEN INSTALLED WEST OF AREA 1. SAMPLES FROM THESE SETS OF WELLS WILL HELP RESOLVE QUESTIONS REGARDING THE REGIONAL GROUNDWATER FLOW AND CONTAMINATION. THESE AND OTHER WELLS WILL BE EXTENSIVELY MONITORED TO ENSURE THE EFFECTIVENESS OF THE REMEDIAL ACTION.

C. CONDITIONALLY REQUIRED ACTIONS WILL BE IMPLEMENTED IF REGIONAL GROUNDWATER CONTAMINATION FROM WESTERN PROCESSING IS DETECTED. DECISIONS ON THE FINAL LEVEL OF GROUNDWATER CLEAN-UP WILL BE POSTPONED UNTIL THE LIMITS OF THE PROPOSED REMEDIAL ACTION ARE STUDIED.

2. EPA'S DATA HAS GENERALLY BEEN COLLECTED AND ANALYZED ACCORDING TO APPROVED EPA PROCEDURES. EPA DISAGREES WITH THE OWNER'S INTERPRETATION OF THE DATA WHICH FORMS THE BASIS OF HIS ARGUMENTS. FOR EXAMPLE, THE 1980 STORET DATA DOES SHOW GREATLY INCREASED CONTAMINATION BETWEEN THE UPSTREAM AND DOWNSTREAM DATA POINTS. ZINC IS A GOOD EXAMPLE. THE UPSTREAM SAMPLE IS BELOW THE AMBIENT WATER QUALITY CRITERIA FOR AQUATIC ORGANISMS WHILE THE DOWNSTREAM SAMPLE IS APPROXIMATELY 15 TIMES THE CRITERIA. ON ANOTHER POINT, THE LARGEST SET OF DATA ON THE ON-SITE CONTAMINATION (THE "3013 REPORT", DATED MAY 1983) WAS BASED ON SAMPLES TAKEN IN THE FALL OF 1982 WHILE WESTERN PROCESSING WAS STILL OPERATING. ALL SAMPLE RESULTS WILL CONTINUE TO BE SENT TO THE PROPERTY OWNER AND ALL OTHER INTERESTED PARTIES.

3. FUTURE PUBLIC PARTICIPATION. EPA INTENDS TO REMAIN THE LEAD AGENCY FOR COMMUNITY RELATIONS, WITH ACTIVE PARTICIPATION BY WDOE AND THE CONTRACTORS. IT IS EPA'S INTENTION THAT COMMUNITY RELATIONS ACTIVITIES WILL INCLUDE:

- PUBLIC PRESENTATIONS ON THE PROGRESS OF WORK ON THE WESTERN PROCESSING SITE, WITH THE FREQUENCY AND LOCATION TO BE GUIDED BY PUBLIC INTEREST AND THE CITY OF KENT. A POSSIBLE APPROACH IS FOR

MONTHLY PRESENTATIONS AT THE CITY OF KENT CITY COUNCIL WORKSHOPS THROUGHOUT THE DESIGN AND ACTIVE REMEDIAL CONSTRUCTION PERIOD, WITH QUARTERLY OR ANNUAL PRESENTATIONS DURING THE EXTENDED O&M AND MONITORING PERIODS.

- CONTINUATION OF THE INFORMATION REPOSITORY AT THE CITY OF KENT AND EPA REGIONAL LIBRARY. AT A MINIMUM, COPIES OF ALL PUBLIC AND PRESS RELEASES; QUALITY ASSURED GROUNDWATER, SURFACE WATER, SOIL, SEDIMENT, AND AIR MONITORING DATA; DETAILED PLANNING STUDIES AND SUPPLEMENTAL REMEDIAL PLANNING DOCUMENTS AND ALL OTHER SIMILAR DOCUMENTS WILL BE PLACED IN THESE REPOSITORIES PROMPTLY.

- PUBLIC PRESENTATIONS ON THE SUPPLEMENTAL PLANNING STUDIES, IF ANY ARE INITIATED. PUBLIC PRESENTATIONS WOULD, AT A MINIMUM, BE MADE DURING THE DESIGN OR SCOPING OF THE STUDY, AND AGAIN WHEN THE STUDY IS COMPLETED AND RECOMMENDATIONS ARE MADE. THESE PUBLIC PRESENTATIONS MAY BE PART OF THE ABOVE REGULAR PUBLIC PRESENTATIONS, WITH ADDITIONAL PUBLIC ANNOUNCEMENTS ON THE AGENDA OF THE PRESENTATION.

- PREPARATION AND DISTRIBUTION OF A PUBLIC NOTICE AND FACT SHEET AT THE COMPLETION OF ENGINEERING DESIGN.

4. PROPERTY VALUES AND FUTURE LAND USE. THE RECOMMENDED REMEDIAL ALTERNATIVE WILL NOT FORECLOSE DEVELOPMENT OF PROPERTY OUTSIDE AREA 1 IN THE FUTURE. THE OFF-SITE SOIL CLEAN-UP CRITERIA WILL ALLOW SAFE DEVELOPMENT OF THE PROPERTIES, THOUGH WORKER PROTECTION MAY BE RECOMMENDED BY THE HEALTH DEPARTMENT DURING DEEP EXCAVATION FOR UTILITIES. CAP/COVER MAINTENANCE WILL BE NECESSARY UNTIL A SITE IS DEVELOPED AND AN ALTERNATIVE COVER PLACED ON THE SITE BY THE PROPERTY DEVELOPER. FOR CERTAIN PROPERTIES, DEVELOPMENT IN THE SHORT-TERM MAY NOT BE POSSIBLE BECAUSE GROUNDWATER EXTRACTION WELLS AND OTHER FACILITIES VITAL FOR THE CLEAN-UP MAY NOT BE COMPATIBLE WITH DEVELOPMENT.

DECISIONS OF WHETHER AREA I CAN BE DEVELOPED WILL HAVE TO WAIT. IF THE SOIL ON THE SITE IS EVENTUALLY SOLIDIFIED OR STABILIZED IN PLACE SUCH THAT A RCRA CAP IS NO LONGER NECESSARY FOR THE PROTECTION OF PUBLIC HEALTH AND THE ENVIRONMENT, DEVELOPMENT OF THE SITE MAY BE POSSIBLE. IF A RCRA CAP WAS TO BE PLACED ON THE SITE TODAY, FUTURE DEVELOPMENT OF THE SITE MAY NOT BE POSSIBLE. DEPENDING ON THE FINAL DESIGN, A RCRA EQUIVALENT CAP MAY OR MAY NOT BE COMPATIBLE WITH DEVELOPMENT.

5. PROTECTION OF WORKERS DURING MAINTENANCE ACTIVITIES ON THE SURROUNDING UTILITIES. THE RECOMMENDED ALTERNATIVE INCLUDES INSPECTION AND CLEANING OF THE NEARBY MANHOLES AND VAULTS WHICH MAY BE ENTERED DURING REGULAR MAINTENANCE ACTIVITIES. SOILS ALONG THE OLYMPIC PIPELINE WHICH MAY POSE A DIRECT CONTACT HAZARD WILL BE REMOVED OR THE PIPELINE MOVED.

6. PREFERRED SUBSURFACE ALTERNATIVES. THE SELECTED REMEDY INCORPORATES MANY FEATURES WHICH WERE DISCUSSED OR RAISED DURING THE PUBLIC COMMENT PERIOD. EXAMPLES INCLUDE ADDITIONAL SOIL AND GROUNDWATER TESTING (AS DISCUSSED ABOVE); RECONSIDERATION OF ALTERNATIVE TECHNOLOGIES TO REDUCE THE HAZARDS OF ANY MATERIALS LEFT ON-SITE, EXCAVATION AND OFF-SITE DISPOSAL OF THE MOST HAZARDOUS MATERIALS, A PERFORMANCE STANDARD APPROACH FOR GROUNDWATER CLEANUP, AND OFF-PROPERTY CLEAN-UP. A DIVERSION WALL IS NOT PART OF THE SELECTED REMEDY.

7. PREFERRED MILL CREEK ALTERNATIVES. THE POSSIBILITY OF MOVING THE CREEK WAS RECONSIDERED AFTER THE COMMENT PERIOD CLOSED. WHILE MOVING THE CREEK MAY HAVE BENEFITS FOR SOME PROPERTY OWNERS WISHING TO DEVELOP THEIR PROPERTIES, THE FUND AND THE NCP IS DESIGNED TO MITIGATE ENVIRONMENTAL PROBLEMS FROM RELEASES OF HAZARDOUS SUBSTANCES. BECAUSE MILL CREEK IS THE GROUNDWATER "SINK" FOR WATER UNDER WESTERN PROCESSING, SOME OF THE SUGGESTIONS FOR MOVING MILL CREEK COULD MAKE THE EXTENT OF SHALLOW GROUNDWATER CONTAMINATION GREATER AND THUS WOULD BE DETRIMENTAL. MOVING THE CREEK WOULD BE ENVIRONMENTALLY ACCEPTABLE ONLY IF THE EXISTING CREEK BED WOULD BE REPLACED BY A FRENCH DRAIN, IF THE DISCHARGE FROM THE FRENCH DRAIN WOULD BE GUARANTEED TO MEET NPDES STANDARDS, AND IF THE FRENCH DRAIN WAS PROPERLY MAINTAINED. THIS WOULD BE MORE EXPENSIVE THAN THE SELECTED REMEDY WITHOUT ENVIRONMENTAL BENEFITS. ALSO, A GOOD SIZED EASEMENT FOR THE RE-ROUTED CREEK WOULD BE NECESSARY TO ENSURE ADEQUATE FLOOD FLOW CAPACITY. THE SELECTED ALTERNATIVE IS LARGELY ORIENTED TOWARDS ENSURING IMPROVED WATER QUALITY IN MILL CREEK. IT ALSO INCLUDES EXCAVATION OF CONTAMINATED SEDIMENTS WHICH MAY BE HARMFUL TO AQUATIC ORGANISMS.

SEPTEMBER 1985.

ATTACHMENT

TABLE 1
WESTERN PROCESSING
PUBLIC COMMENT PERIOD ON THE FEASIBILITY STUDY

AS OF APRIL 26, 1985, WRITTEN COMMENTS HAD BEEN RECEIVED FROM THE FOLLOWING:

GREG WINGARD, TEAC AND THE PROPOSAL CONSENSUS GROUP
THE DEPARTMENT OF THE INTERIOR
OLYMPIC PIPE LINE COMPANY
METRO
NOAA
PUGET POWER
DEAN BITNEY AND CHUCK GROUWS
U.S. ARMY CORPS OF ENGINEERS
THE CITY OF KENT
MYRON HARR
WESTERN PROCESSING
KAREN OLSON RASMUSSEN, FRANKLIN & WATKINS
PACIFIC NORTHWEST BELL
PUGET SOUND ALLIANCE
TROUT UNLIMITED
WASHINGTON INSTITUTE FOR JUDICIAL REVIEW
EPA-ORD, HAZARDOUS WASTE ENGINEERING RESEARCH LABORATORY, CINCINNATI
STANDARD EQUIPMENT, INC
DEPARTMENT OF COMMUNITY DEVELOPMENT.

TABLE 1
INDICATOR CONTAMINANTS USED AT WESTERN PROCESSING

ORGANICS	INORGANICS
VOLATILE ORGANICS:	METALS:
1,1,1-TRICHLOROETHANE	CADMIUM
TRANS-1,2-DICHLOROETHENE	CHROMIUM
TETRACHLOROETHENE	COPPER
TRICHLOROETHENE	NICKEL
TOLUENE	LEAD
CHLOROFORM	ZINC
ACID EXTRACTABLE COMPOUNDS:	
2,4-DIMETHYLPHENOL	
PHENOL	
BASE/NEUTRAL COMPOUNDS:	
TOTAL PAH'S	
TOTAL PHTHALATES	
OTHER ORGANICS:	
PCB'S	
OXAZOLIDONE	

(A) TOTAL PRIORITY POLLUTANT POLYCYCLIC AROMATIC HYDROCARBONS (PAH'S).

TABLE 2
LOCATION OF CHEMICALS WITHIN THE SOIL PROFILE

INDICATOR COMPOUNDS	DEPTH BELOW THE SURFACE WHERE COMPOUNDS WERE MOST FREQUENTLY FOUND	DEPTH BELOW THE SURFACE WHERE COMPOUNDS WERE FOUND IN THE HIGHEST CONCENTRATIONS
METALS	0 TO 9 FEET	0 TO 9 FEET
VOLATILE ORGANICS	6 TO 9 FEET	6 TO 9 FEET
ACID EXTRACTABLES	9 TO 21 FEET	9 TO 21 FEET
BASE/NEUTRALS		
TOTAL PAHS	0 TO 3 FEET	0 TO 3 FEET
PHTHALATES	0 TO 9 FEET	SURFACE SOIL
PCB'S	SURFACE SOIL	10 FEET (ON-PROPERTY) SURFACE SOIL (OFF-PROPERTY).